Technical Report 1241

Selection for Accelerated Basic Combat Training

Richard R. Hoffman III, Stephanie Muraca, and Tonia S. Heffner
U. S. Army Research Institute

Ryan Hendricks
George Mason University

Arwen E. Hunter
George Washington University

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**MICHELLE SAMS, PhD.
Director**

Technical review by

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Nehama Babin, U.S. Army Research Institute

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14. ABSTRACT *(Maximum 200 words)*:
The U.S. Army asked the U. S. Army Research Institute for the Behavioral and Social Sciences (AI) to develop a tool to select qualified candidates for an accelerated Basic Combat Training (BCT) track. The tool was to incorporate non-cognitive measures to provide broader measurement than an existing procedure which relied on a cognitive test and a physical fitness test.

The tool was developed over two phases, a development phase and a validation phase. The results suggested that non-cognitive assessment can contribute to the identification of the most well-prepared Soldiers for a more challenging training regimen. However, the results were not sufficiently consistent across the two phases to suggest a stable model for identifying such Soldiers.

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**Richard R. Hoffman III, Stephanie Muraca, and
Tonia S. Heffner**
U. S. Army Research Institute

Ryan Hendricks
George Mason University

Arwen E. Hunter
George Washington University

ARI-Arlington Research Unit (Personnel Assessment)
Michael Rumsey, Chief

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SELECTION FOR ACCELERATED BASIC COMBAT TRAINING

EXECUTIVE SUMMARY

Research Requirement:

The U.S. Army asked the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) to develop a tool to select qualified candidates for a newly implemented accelerated Basic Combat Training (BCT) track. It was hypothesized by Army leaders that providing greater challenges to the most well-prepared Soldiers would increase their overall performance by keeping them more engaged in training. The training content between the two tracks was the same; the only difference was that the amount of time to cover the material was condensed in the accelerated track. For the initial iterations of the pilot accelerated program, Soldiers were selected based on their physical fitness, cognitive aptitude, familiarity with the Army, and a quick subjective assessment by the Drill Sergeants. However, the Army was concerned that highly motivated individuals who might succeed in such a program were not being selected by these measures. Soldiers who may not test as well on cognitive aptitude and physical fitness might have superior levels of desire and motivation to perform well in an accelerated program. Thus, it was hypothesized that a Soldier's level of motivation might be predictive of superior BCT performance. Therefore, ARI was asked to develop a selection equation taking into account physical fitness, cognitive aptitude, and non-cognitive factors that would be used to select the most qualified Soldiers for the accelerated track.

Procedure:

There were two phases in this effort. The first phase was the development research used to generate the selection equation. The second was the validation effort in which the selection equation incorporating non-cognitive constructs was used operationally to assign Soldiers to the different BCT tracks. Both phases employed the same procedure using a longitudinal design. All instruments were paper and pencil measures. The non-cognitive predictor measure, the Rational Biodata Inventory (RBI) was administered to Soldiers while they were in Reception Battalion (REC BN). In addition, an attitudes measure that assessed seven constructs about feelings towards the Army and Army environments also was administered during REC BN. A week before graduation from BCT, the criterion data were collected. Criterion data consisted of a BCT Job Knowledge Test (BCT-JKT), the same attitude measures administered at REC BN, and performance ratings made by Drill Sergeants.

Findings:

The phase one analyses revealed that the non-cognitive assessment did contribute to the identification of the most well-prepared Soldiers for a more challenging training regimen. All 12 RBI scales correlated with the criterion measures of BCT-JKT scores, performance ratings, and attitudes. Moreover, regression analyses revealed that the RBI predicted unique variance above and beyond the pre-training APFT and GT score. Based on the analyses, the following constructs were recommended for use in a selection equation: Fitness Motivation, Self-

efficacy, GT score, pre-training APFT, Stress Tolerance, Army Affective Commitment, Cultural Tolerance, Achievement Motivation, and Internal Locus of Control.

A follow-up validation effort was conducted in which the selection equation was used to assign Soldiers to either the accelerated or standard BCT track. Self-Efficacy and Stress Tolerance were significantly related to job knowledge and job performance ratings. Fitness Motivation also was significantly related to job performance ratings, and Stress Tolerance was significantly related to BCT-JKT and Drill Sergeant Composite ratings. Furthermore, eight other RBI scales and cognitive aptitude were significantly related to one or more of the criteria.

Despite this pattern of relationships, the regression analyses did not replicate the findings obtained in the development effort. Only one RBI scale predicted unique variance with a criterion variable, and because this scale did not exhibit the same relationship in the development sample, it is difficult to state with confidence that the scale should be used as a selection tool. Moreover, because the non-cognitive findings of the development research were not replicated, it is not possible to posit that this specific equation should be used in the future as a selection tool.

The mixed results for the validation sample should not be interpreted as implying that using non-cognitive predictors for accelerated BCT is not viable. The findings offer support for the idea that non-cognitive predictors are a useful component for identifying qualified candidates for an accelerated training track. Indeed, in the development research, regression analyses revealed unique predictive ability for these predictors. There were several limitations, such as small sample size, that hindered the chances of replicating the development research findings. Addressing these limitations will increase the chances of developing a selection tool in a research setting that can be replicated in an operational setting.

Utilization and Dissemination of Findings:

The Army has learned important lessons for the future. First, non-cognitive assessment does contribute to the identification of the most well-prepared Soldiers for a more challenging training regimen. Further research is required to develop a stable, validated model; however, there is enough evidence to view the potential benefits as promising. Second, further research on methods of combating response distortion on non-cognitive measures should be pursued. Third, well-prepared Soldiers in accelerated training programs are not disadvantaged by the shorter training time as measured by the criteria used in the current research.

SELECTION FOR ACCELERATED BASIC COMBAT TRAINING

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Overview

At its essence, selection is an accept/not accept decision (Campbell, 2001) and is based on the expectation that characteristics of the applicant will fit the job requirements to result in at least minimally acceptable job performance. In large-scale settings, such as military service and law enforcement, the focus has been placed on "screening out" unacceptable candidates (Detrick & Chibnall, 2006) with an emphasis placed on cognitive aptitude and illegal or immoral behaviors. The vast majority of selection research, however, focuses on "screening in" and predicting job performance from myriad personal characteristics including cognitive (Schmidt & Hunter, 1998) and non-cognitive attributes such as personality (Barrick & Mount, 1991; Ones, Viswesvaran, & Schmidt, 1993) and person-environment fit (Kristof-Brown, Zimmerman, & Johnson, 2005).

The current effort takes a "screening in" approach which draws on selection research and the prediction of performance. Soldiers are accessed into, or enter, the Army in very large groups, sometimes exceeding 1000, to begin Basic Combat Training (BCT). These Soldiers vary widely in their physical, cognitive, and emotional preparedness for training. With such large groups of Soldiers and the requirement to teach a wide variety of unfamiliar tasks in nine weeks[1], it is necessary to take a very standardized approach to training. The result is that the most well-prepared Soldiers learn very quickly and are not overly taxed by training whereas the least-prepared Soldiers are highly challenged in the training environment. It was hypothesized by Army leaders that providing greater challenge to the most well-prepared Soldiers would increase their overall performance by keeping them more engaged in training. A plan was developed to begin a seven-week accelerated Basic Combat Training program to provide a training environment with increased challenge for the most well-prepared Soldiers and it was decided that research was needed to determine an appropriate method for selecting Soldiers into the accelerated training.

Therefore, a research project was conducted to identify cognitive, non-cognitive, and physical predictors and determine their relationships with Basic Combat Training performance. This research effort would determine the feasibility of developing an experimental selection equation/tool based on these relationships that would then be validated in a longitudinal study. Once the relationships among predictors and criteria were established, a model could potentially be developed to identify qualified recruits to participate in the accelerated training program.

Predicting Performance in Training and on the Job

Cognitive predictors
Cognitive aptitude research efforts have shown the predictive validity of both cognitive (e.g., Bertua, Anderson, & Salgado, 2005) and non-cognitive (e.g., Barrick & Mount, 1991; Salgado, 1997) constructs for predicting job performance. With regard to cognitive predictors, Bertua et al. conducted a meta analysis to identify the predictive validity of cognitive constructs against job and training performance for the following civilian job categories: clerical, engineer, professional, driver, operator, manager, and sales. Their analysis revealed that several cognitive

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[1] The Army is in the process of converting to a 10-week Basic Combat Training; however Basic Combat Training was nine weeks when this research was conducted.

constructs, such as General Mental Ability, verbal, mathematical, perceptual, and spatial abilities, predicted overall job performance for all job groups. Although predictive validity varied across the job types (e.g., strongest relationship with engineer and professional job types and weakest with the clerical group) the important finding with regard to the present research is that cognitive constructs predicted job performance across a wide variety of jobs.

Research also has demonstrated that cognitive constructs predict job performance in military settings. For example, Ree, Earles, and Teachout (1994) assessed the predictive validity of the Armed Services Vocational Aptitude Battery (ASVAB) on job performance, operationalized as hands-on and verbal tests, for 7 Air Force Enlistee jobs: Air Traffic Control Operator, Precision Measurement Equipment Laboratory Specialist, Avionics Communications Specialist, Aerospace Ground Equipment Mechanic, Jet Engine Mechanic, Information Systems Radio Operator, and Personnel Specialist. Their analyses revealed that general cognitive ability, defined as an empirically derived score from the entire ASVAB, predicted performance on both hands-on tests and verbal tests for all of the job types with Precision Measurement Equipment Lab Specialist and Avionics Communications Specialist demonstrating the strongest relationship and Air Traffic Controller showing the weakest. These results are similar to Bertua et al.'s (2005) findings in that general cognitive ability relates to performance for several different job types which require different skills (e.g., a mechanic vs. a personnel specialist).

Oppler, McCloy, Peterson, Russell, and Campbell (2001) also found the ASVAB to be predictive of military job performance, but their focus was on Army jobs. They included several different type of Army jobs, such as Infantryman, Tank Crewman, Radio Operators, Mechanics, Administrative Specialists, Truck Drivers, Medics, and Military Police. They found that the composite scores from the ASVAB subtests consistently predicted several aspects of job performance across jobs including job specific tasks and Army general tasks. Additionally, ASVAB subtests predicted effort and leadership (e.g., number of awards and certificates, ratings of overall effectiveness and leadership). Ree et al.'s (1994) and Oppler et al.'s (2001) work are just two of many studies (e.g., Jensen, 1985; Murphy, 1985) demonstrating the utility of the ASVAB in predicting military job performance.

Non-cognitive predictors

Non-cognitive measures and performance work has focused on the "Big Five" personality traits: Extraversion, Emotional Stability, Agreeableness, Conscientiousness, and Openness to Experience. Barrick and Mount (1991) conducted a meta-analysis to assess the predictive validity of these traits on job performance. They included five job types in their analysis: professionals (e.g., engineers, attorneys, doctors), police, managers, sales, and skilled/semi-skilled (e.g., administrative assistants, nurses aides, telephone operators). Their findings showed that Conscientiousness and Extraversion predicted job performance with Conscientiousness being a predictor for all of the job types included in the sample; Extraversion was related only to sales and managerial effectiveness. The other constructs were not predictive of job performance. Salgado's meta-analysis (1997) used the same job groups as Barrick and Mount (1991) but focused on studies conducted in Europe whereas Barrick and Mount included studies conducted in the United States and Canada. Salgado (1997) obtained a similar finding such that Conscientiousness predicted performance across job types and Extraversion related to

sales and managerial performance. However, unlike Barrick and Mount (1991), he also found Emotional Stability predicted performance across all job types.

Models of job performance have supported the importance of non-cognitive attributes for prediction (Campbell, Hanson, & Oppler., 2001; Motowidlo, Borman, & Schmit, 1997). In Project A, a large-scale longitudinal selection and classification research effort conducted by the U.S. Army, Campbell et al. (2001) identified two global factors of job performance. *Can do* performance is a reflection of the employee's requisite knowledge, skills and attributes (KSAs) to perform the tasks whereas *will do* performance is a reflection of the employee's motivation to perform. Oppler et al.'s (2001) research findings showed that, overall, the ASVAB was better at predicting *can do* performance, whereas non-cognitive constructs were better at predicting *will do* performance. Thus, these results suggest a combination of cognitive and non-cognitive predictors will increase the prediction of *can do* and *will do* performance.

Army researchers have examined the predictive impact of non-cognitive measures for Soldiers in their first term of enlistment and noncommissioned officers (NCOs) (Knapp, McCloy, Heffner, 2004; Knapp & Tremble, 2007). The non-cognitive measures predicted both job performance and attitudinal criteria such as job satisfaction, attrition cognitions, career intentions for Soldiers during their first term of enlistment (Knapp & Tremble, 2007), as well as attrition in training (Putka & Le, 2005). For the NCOs, the non-cognitive measures predicted job performance and one-year promotion attainment (Knapp et al., 2004).

Although training performance is not synonymous with job performance, the job performance models are likely to generalize to the training environment. Campbell et al.'s (2001) global factors of *can do* and *will do performance* may be particularly generalizable to training performance because many of the measures used in the modeling approach were administered at the end of training (Knapp, Campbell, Borman, Pulakos, & Hanson, 2001). Furthermore, Bertua et al.'s (2005) meta analysis revealed that cognitive constructs predicted job performance as well as training performance across all job types.

Further, research on the prediction of training performance supports both a cognitive and non-cognitive contribution (Barrick & Mount, 1991; Bertua et al., 2005; Cuttler & Muchinsky, 2006; Detrick & Chibnall, 2006). Barrick and Mount's (1991) meta-analytic work assessed the extent the Big Five Personality Traits predicted training outcomes. They found relationships that were quite similar between these traits and job performance described previously. Conscientiousness and Openness to Experience predicted training performance for all of the five job types they studied (professionals, police, managers, sales, and skilled/semi-skilled). Likewise, Salgado's (1997) meta analysis obtained a similar relationship between Conscientiousness and Openness to Experience and training performance. In addition, Agreeableness also was found to be predictive of training proficiency. Moreover, Herold, Davis, Fedor, and Parsons (2002) found that emotional stability, openness to experiences, and conscientiousness all contributed to training performance of students in an aviation pilot training program. In order to obtain pilot's license, students, while flying with an instructor, had to pass 26 lessons. These three Big Five traits predicted students taking fewer hours to pass all of the requirements.

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In research most similar to the current research in terms of research goals when also considering training environment and the research sample, Detrick, Chibnall, and Luebbert (2004) found that NEO Personality Inventory (NEO PI-R) facet scores of Values, Excitement-Seeking, Anxiety, Deliberation, Fantasy, Activity, and Vulnerability predicted police academy outcomes including academic performance, firearms proficiency, and physical performance. In a follow-up effort of police academy cadets, Detrick and Chibnall (2006) derived a profile of the "best entry-level officers," defined as the top 10%, consisting of low Anger-Hostility, low Depression, low Vulnerability, high Assertiveness, high Excitement-Seeking, high Achievement Striving, and high Self-Discipline. The research by Detrick and his colleagues (2004) suggests that temperament/personality is likely to be a predictor of the most well-prepared Soldiers because there are numerous parallels between this research and current BCT research. Both training programs are highly structured with heavy demands on physical, cognitive, and emotional stability of the student. Both environments can be stressful, and it is essential to have the temperament to handle the stress as well the high levels of motivation to complete the training.

Army Non-Cognitive Measures

The U.S. Army has invested considerable resources into the development of non-cognitive measures. One substantive attempt to develop a non-cognitive assessment was the self-report instrument, Assessment of Background and Life Experiences (ABLE), in Project A (Campbell & Knapp, 2001). The ABLE was designed to assess six temperament constructs: Dependability, Adjustment, Work Orientation, Leadership, Agreeableness, and Physical Conditioning. Originally, there was great interest in using ABLE for enlisted personnel selection and classification decisions, but its proposed implementation was withdrawn largely due to concerns about its susceptibility to response distortion or faking (White & Young, 2001). This initial attempt, however, demonstrated the potential for non-cognitive measures in selection and classification and sparked a continued interest in developing measures that are less susceptible to faking.

Rational Biodata Inventory (RBI)

The RBI assesses motivational and temperament characteristics by asking respondents about prior behavior, experiences, and reactions to life events (see Table 1). These constructs represent a range of personality attributes that are hypothesized to impact how Soldiers deal with different aspects of BCT. For example, views of authority figures should influence how Soldiers interact with and obey their Drill Sergeants, and possessing interpersonal skills, tolerance of other cultures, and leadership traits should help Soldiers get along well with other Soldiers. The RBI is an expanded, updated version of the Test of Adaptable Personality (TAP), that was used to predict the performance of Special Operations Forces (SOF) officers and enlisted Soldiers in the field (Kilcullen, Goodwin, Chen, Wisecarver, & Sanders, 2002; Kilcullen, Mael, Goodwin, & Zazanis, 1999; Kilcullen, Putka, McCloy, and Van Iddekinge 2005). The RBI demonstrates good convergent and discriminant validity with standard, off-the-shelf temperament measures (Kilcullen, White, Mumford, & Mack, 1995), and significantly predicts enlisted job performance in conventional units (Kilcullen, Putka, & McCloy, 2007). It also includes a Lie Scale to detect socially desirable response patterns to help to counteract respondents misrepresenting themselves either intentionally or unintentionally.

In the Select21 concurrent validation project, RBI scales of Achievement Motivation, Self-efficacy, Internal Locus of Control, and Fitness Motivation were related to valued Army outcomes including Job Knowledge, Achievement and Effort (as rated by Supervisors), Weapons Qualification score, and Physical Fitness score. In addition, the scales Hostility to Authority, Army Affective Commitment, Internal Locus of Control, Achievement Motivation, and Stress Tolerance were related to attitudinal criteria including Satisfaction in the Army, Perceptions of Fit to the Army, Career Intentions, and Attrition Cognitions. With few exceptions, the RBI scales demonstrated significant incremental validity beyond the ASVAB for prediction of Achievement and Effort and all of the attitudinal criteria (Kilcullen et al., 2007). Thus, the RBI showed great promise as a potential selection instrument to identify Soldiers capable of participating in the accelerated BCT track based on its relationship to job performance and attitudes.

Assessment of Individual Motivation (AIM)

The AIM measures six temperament constructs relevant to military performance (see Table 2). A forced-choice format is used to reduce fakability and to improve the accuracy of the self-report information. In addition, the AIM includes a Validity scale for detecting inaccuracies in self-reports caused by intentional or subconscious attempts to exaggerate one's capabilities. The AIM requires the respondent to provide information about his or her strengths and weaknesses. It assesses the same constructs as the ABLE because these constructs were identified to be the most critical for Army personnel; moreover, these constructs are highly similar to those assessed by "Big Five" measures with the exception of Physical Conditioning (see Table 2).

Currently, the AIM is used operationally in the Tier Two Attrition Screen (TTAS), a supplemental selection screen employed when Army applicants do not have a high school diploma. Evaluation of the AIM in the TTAS program suggests that this measure is predictive of 6-, 9-, and 12-month attrition (White, Hunter, & Young, 2007). Moreover, it has been shown to reduce the attrition rate of these applicants so that it is closer to the attrition rates of those applicants with high school diplomas.

Table 1. Constructs Assessed by the RBI

Construct Title	Number of Items	Definition
Peer Leadership	6	Seeking positions of authority and influence. Comfortable with being in charge of a group. Willing to make tough decisions and accept responsibility for the group's performance.
Cognitive Flexibility	8	Willing to entertain new approaches to solving problems. Enjoys creating new plans and ideas. Initiates and accepts change and innovation.
Achievement Motivation	9	Willing to give one's best effort and to work hard towards achieving difficult objectives.
Fitness Motivation	7	Willing to put in the time and effort to maintain good physical conditioning. Enjoys participation in physical exercise.
Interpersonal Skills - Diplomacy	5	Being extroverted and outgoing. Able to make friends easily and establish rapport with strangers. Good at meeting/greeting people.
Stress Tolerance	11	Being able to maintain one's composure under pressure. Remaining calm and in control of one's emotions instead of feeling anxious and worried.
Hostility to Authority	7	Being suspicious of the motives and actions of legitimate authority figures. Viewing rules, regulations, and directives from higher authority as punitive and illegitimate.
Self-efficacy	6	Feeling that one has successfully overcome work obstacles in the past and that one will continue to do so in the future.
Cultural Tolerance	5	Willing to work with people of different cultures. Being able to establish supportive work relationships with people with a variety of racial and ethnic backgrounds.
Respect for Authority	4	Perceiving authority figures as having a positive influence on one's knowledge and skill development.
Internal Locus of Control	8	Believing that one can exert influence over important events in order to control one's destiny.
Army Affective Commitment	7	Personally identifying with the U.S. Army and intrinsic interest in becoming a U.S. Army Soldier.
Lie Scale	7	This scale is not a predictor scale. Its purpose is to detect and adjust for socially desirable responding.

Additionally, the AIM also has been investigated for use in post-enlistment personnel and selection assessment. In an effort to validate a maturity-screening tool for Army Correctional Specialists, the Dependability, Adjustment, and Work Orientation scales of AIM were all found to be related to Correctional Specialists' performance (both supervisor ratings and administrative

criteria; White & Young, 2001). In a separate research project, the Work Orientation and Leadership scales predicted peer and supervisor performance ratings of Army Drill Sergeants (Kubisiak et al., 2005). The AIM also was found to predict Explosive Ordnance Disposal training attrition (White & Young, 2001), Army Recruiter training attrition and production (Horgen et al., 2006), and the field performance of Special Forces Soldiers' performance (Kilcullen, Mael, Goodwin, & Zazanis, 1999). Given the results of all of these research efforts, it was hypothesized that the AIM would be a viable selection instrument for the accelerated BCT track.

Table 2. Definitions of Constructs Assessed by AIM Scales

Title	Definition
Work Orientation	The tendency to strive for excellence in the completion of work-related tasks. Persons high on this construct seek challenging work activities and set high standards for themselves. They consistently work hard to meet these high standards.
Adjustment	The tendency to have a uniformly positive affect. Persons high on this construct maintain a positive outlook on life, are free of excessive fears and worries, and have a feeling of self-control. They maintain their positive affect and self-control even faced with stressful situations.
Agreeableness	The tendency to interact with others in a pleasant manner. Persons high on this construct get along and work well with others. They show kindness, while avoiding arguments and negative emotional outbursts directed at others.
Dependability	The tendency to respect and obey rules, regulations, and authority figures. Persons high on this construct are more likely to stay out of trouble in the workplace and avoid getting into difficulties with law enforcement officials.
Leadership	The tendency to seek out and enjoy being in leadership positions. Persons high on this scale are confident of their abilities and gravitate towards leadership roles in groups. They feel comfortable directing the activities of other people and are looked to for direction when group decisions have to be made.
Physical Conditioning	The tendency to seek out and participate in physically demanding activities. Persons high on this construct routinely participate in vigorous sports of exercise, and enjoy hard physical work.

Accelerated Basic Combat Training

The standard Basic Combat Training (BCT) is nine weeks. The seven-week accelerated BCT was developed for the most highly qualified Soldiers who should be capable of learning the material and achieving the physical fitness requirements at a faster pace. The goal was to provide greater challenge to the most well-prepared Soldiers in the hope that it would increase their overall performance by keeping them more engaged in training. The training content between the two tracks was the same; the only difference was that the amount of time to cover the material was condensed. The shortened course was achieved in two ways. First, the training days were lengthened so that more could be taught in a single day and more training was conducted on weekends. Second, the time required for all of the participating Soldiers to meet

standard performance requirements was reduced dramatically because there were fewer Soldiers and there was little downtime waiting for the less-prepared Soldiers to meet standard.

The Army initiated the accelerated BCT course prior to inviting the ARI research team to assist with Soldier selection. For the initial iterations of this pilot program, Soldiers were selected based on their physical fitness, cognitive aptitude, familiarity with the Army, and a quick subjective assessment by the Drill Sergeants. Employing these measures for selection purposes was a sound decision based on available research. There are intense physical requirements needed to graduate from BCT. Further, prior research (e.g., Ree et al., 1994; Oppler et al., 2001) has shown that the ASVAB is a psychometrically strong measure of cognitive aptitude and is an effective predictor of technical performance. In addition, a subjective assessment and familiarity of the Army were reasonable aspects of the selection process given that there were no additional means at the Army's disposal. However, the goal of developing the selection tool was to replace these quick, subjective assessments.

Summary

The purpose of this research was threefold. One purpose was to assess the relationships of the cognitive, non-cognitive, and physical predictors with valued outcomes such as training performance and attitudes for Soldiers with very short tenure in the Army. Although the previously reviewed literature clearly demonstrated relationships between these predictors and criteria, the strength of these relationships for very proximal time frames, i.e., the first weeks of training, has not been established. The second purpose of this research was to examine the feasibility of developing an experimental selection equation/tool based on these relationships. Once the relationships among predictors and criteria were established via a longitudinal design, a model potentially could be developed to identify qualified recruits to participate in the accelerated BCT. The third element was, if feasible, to validate the model in a subsequent longitudinal project.

Model Development

Method

Participants

Participants in the development sample consisted of 788 Soldiers who had been in the Army approximately 48 hours and had not yet begun Basic Combat Training. Gender data from archival records were available for 395 Soldiers. Of those Soldiers, 324 (82%) were male and 71 (18%) were female. This proportion is consistent with the Army population (U.S. Army, 2005). For the subset of 124 Soldiers assigned to the accelerated track the proportion was similar - 100 males (81%), 23 females (19%), and 1 not reported.

Non-Cognitive Predictor Measures

Soldier background form. The Soldier background form is used to collect demographic information including Army component (Regular Army, Army Reserve, or Army National Guard), job, rank, gender, and race.

Rational Biodata Inventory (RBI). The RBI, developed by ARI (Kilcullen, et al.,1995) assesses motivational and temperament characteristics by asking respondents about prior behavior, experiences, and reactions to life events. The 90-item self-report RBI consists of 12 scales each measuring a different construct (see Table 1). The RBI employs Likert type response scales ranging from 1 (low) to 5 (high). In addition to these scales, a Lie scale helps identify individuals faking or otherwise distorting (intentionally or unintentionally) their responses to present themselves in a more positive manner. Soldiers were given 30 minutes to complete the inventory

Assessment of Individual Motivation (AIM). The AIM, developed by ARI (White & Young, 2001), is a 27-item self-report instrument for measuring six temperament constructs relevant to military performance (see Table 2). Although the AIM was specifically developed to reflect temperament constructs that are important for military personnel, there is considerable overlap between the Big Five and AIM constructs. A forced-choice format is used to improve the accuracy of the self-report information and to reduce fakability. Each AIM item consists of a tetrad (four statements) describing possible past behaviors in familiar situations. Two of the statements are phrased positively, and two are phrased negatively. Further, each of the statements reflects a different construct. For each item, respondents choose the one statement that is most like them, and the one statement that is least like them. In addition, AIM includes an approach for detecting inaccuracies in self-reports caused by intentional or subconscious attempts to exaggerate one's capabilities. Soldiers were given 30 minutes to complete the assessment.

Attitudes measure. The 36-item attitudes measure, adapted from previous Army research (Knapp & Tremble, 2007), assesses seven constructs about feelings towards the Army and Army environments (see Table 3). The commitment scales were adapted from Meyer and Allen's (1997) three-component theory of organizational commitment. The Army Identification scale was adapted from Mael and Ashforth (1992). The scales assessing Desire for an Army Career, Army Expectations, and General Self-efficacy were adapted from Lee, Ashford, Walsh, and Mowday (1992). Soldiers were given 30 minutes to complete the measure.

Table 3. Attitude Constructs

Title	Items	Definition
Affective Commitment	4	Assesses emotional attachment to the Army such as "I feel a strong sense of belonging to the Army."
Continuance Commitment	5	Measures how feasible it would be for respondents to leave the Army if they wanted. Includes items such as "It would be too costly for me to leave the Army in the near future."
Army-specific Self-efficacy	6	Assesses confidence in various areas of Army life, including maintaining physical fitness, having skills to perform well, and earning promotions. An example item is, "I will adapt to Army life."
Army Identification	6	Measures how strongly Soldiers identify with and feel a part of the Army. An example item is, "When someone praises the Army, it feels like a personal compliment."
Desire for an Army Career	8	Assesses to what degree Soldiers want to make the Army their career versus other career options. An example item is, "An Army career is really the only career I can imagine for myself."
Army Expectations	4	Assesses expectations regarding training, the job, Drill Sergeants, and the Army in general. An example item is, "I have a good idea about what Army Training will be like."
Self-efficacy	3	Assesses beliefs about accomplishing tasks in general. It differs from the Army-specific Self-efficacy scale because it is not restricted to Army tasks. An example item is, "I expect to accomplish whatever I sent out to do."

Cognitive and Physical Predictor Measures

General Technical Score. The Armed Services Vocational Aptitude Battery (ASVAB), a cognitive aptitude assessment consisting of nine sub-scales, is a battery whose completion is required for all potential Soldiers prior to enlistment to determine service eligibility. The subscales consist of four general aptitude scales, Arithmetic Reasoning, Math Knowledge, Word Knowledge, and Paragraph Comprehension and five specialty tests. These subtests are combined to form ten Army Aptitude Area Composites which determine eligibility for specific jobs. The General Technical (GT) composite, a combination of Arithmetic Reasoning, Word Knowledge, and Paragraph Comprehension subtests, was used as the measure of general cognitive aptitude and was provided by the Army Post in which the data collections occurred.

Pre-training physical fitness. The Army Physical Fitness Test (APFT) is the Army standard assessment of endurance and strength. The subtest scores for the 2-mile run, sit-ups (2 minute limit), and push-ups are adjusted for age and sex and then summed for a total between 0 and 300. The APFT was administered and scored by the Drill Sergeants prior to Soldiers beginning BCT (pre-training APFT).

Criteria

        Basic Combat Training-Job Knowledge Test (BCT-JKT). The Basic Combat Training-Job Knowledge Test (BCT-JKT) is designed to assess the Soldier's knowledge of topics that were covered in Basic Combat Training. The BCT-JKT was adapted for this research based on the Army-Wide Job Knowledge Test developed by ARI to serve as a criterion measure for previous research (Campbell, Keenan, Moriarty, & Knapp, 2004; Knapp & Tremble, 2007). The test blueprint used to develop the Army-Wide Job Knowledge Test and the resulting items are based on a thorough job analysis and Subject Matter Expert (SME) input. The Army-Wide Job Knowledge Test covers several technical aspects of job performance such weapons, first aid, map reading, and movement.

        The Army-Wide Job Knowledge Test was written for experienced first-term Soldiers, so the goal was to adapt some of these items to assess knowledge taught in BCT. The process of determining which (if any) items were applicable to BCT consisted of three steps. The first step was to have the Army-Wide Job Knowledge Test reviewed by an individual SME. The SME drew on personal experience of BCT as well as the Initial Entry Training Soldier's Handbook (U.S. Army, 1999) designed for new Soldiers. This review confirmed that many items did address BCT topics. The next step was to review the BCT curriculum. The purpose of this review was two-fold. First, it served as a means of verifying topics covered in BCT to ensure the selected items were appropriate and to identify any topic areas not addressed by the existing items. This review revealed that the Army-Wide Job Knowledge Test focused on technical knowledge; however, more is taught in BCT than just technical topics. A fair amount of time is spent teaching the seven Army Values, such as Loyalty, Duty, and Respect as well as Soldierization which includes topics as identifying rank insignia and learning the Soldier's Creed. Consequently, several new items were written based on the information provided in the Initial Entry Training Soldier's Handbook. Seven of these items related to Soldierization, and five related to Army Values. The review of the curriculum also determined the ratio of items allocated to each topic area because the curriculum not only documents what topics are covered, but also how much time is spent on each topic. Based on this information, the number of items for each topic was selected. For example, the greatest amount of time dedicated to one topic is for weapons; therefore, weapons items have the highest percentage of total items taken from Army-Wide Job Knowledge Test (See Table 4). Finally, the third step was to have the items reviewed by Drill Sergeants to ensure appropriateness. The Drill Sergeants did not recommend any changes.

        Performance ratings. The Drill Sergeants who were responsible for training the Soldiers in this research were asked to rate their Soldiers' performance on 11 specific dimensions plus an overall effectiveness rating using behaviorally anchored ratings scales (BARS). The twelve dimensions are listed in Table 5. These ratings scales were developed by ARI in previous projects for use with mid-level and first-term Soldiers (Knapp et al., 2004; Knapp & Tremble, 2007) with the exception of the Basic Rifle Marksmanship item which was written specifically for this project. The measure employs a seven point response scale with accompanying behavioral anchors representing low (1 & 2), medium (3, 4, & 5), and high levels of performance (6 & 7) as well as an "NA" response.

Table 4. Topics for the Army-Wide Job Knowledge Test

Topic	# of items
Weapons	9
First Aid	5
Nuclear, Biological, and Chemical Protection	4
Dismounted Movement	4
Map reading	2
Grenade usage	2
Communications	2
Security Scenario	3
Soldierization	7
Army Values	5
Total	43

Attitudes measure. The post-BCT attitudes measure was identical to the pre-BCT attitudes predictor measure. The repeated administration of this measure allowed for pre-BCT and post-BCT comparisons.

Physical fitness. The same physical fitness test administered at pre-training was administered at the end of BCT, labeled in this report as post-training APFT (Army Physical Fitness Test). All Soldiers at the end of BCT are required to exceed a score of 150 out of 300 points on the post-training APFT before they can transition to their job-specific training.

Basic Rifle Marksmanship (BRM). Similar to the post-training APFT, all Soldiers are required to qualify with a weapon, typically the M-16 or M-4, before they can transition to job-specific training. To qualify, the Soldier must hit 32 of 40 targets provided. Although the predictors were not hypothesized to relate to BRM, it is an important Army criterion and thus deserved investigation.

Table 5. Basic Combat Training Performance Dimensions

Common Task Knowledge and Skill
Basic Rifle Marksmanship Knowledge and Skill
Oral Communication Skill
Level of Effort and Initiative on Job
Adaptability
Demonstrated Integrity, Discipline, and Adherence to Army Procedures
Acting as a Role Model
Relating to and Supporting Peers
Cultural Tolerance
Selfless Service Orientation
Problem Solving/Decision Making Skill
Overall Effectiveness

Predictor Measures Administration

All Soldiers were administered the non-cognitive predictor battery approximately 48 hours after entering the Army. They took the two-hour paper and pencil battery in groups ranging from 140 to 250 Soldiers.

After the Soldiers had been seated, a test administrator read the project briefing and privacy act statement. Soldiers were told that the project's mission was to develop a test to be used in conjunction with the ASVAB to determine who should be assigned to the accelerated, 7-week BCT track and who should be assigned to the standard, 9-week BCT track. They also were informed that they would be taking experimental versions of the test; the information gathered would be used for research purposes only and would not be used to assign them to a track or become part of their permanent Army record. It was emphasized that it was very important for them to answer all of the questions as completely and honestly as possible because the information they provided would be used to develop the final version of this test.

After completing the Soldier Background form, Soldiers completed the RBI (30 minutes), the AIM (30 minutes), and the attitudes measure or the Experimental AIM (30 minutes).[2] The research plan was for all Soldiers to take the attitudes measure and the experimental version of the AIM. However, due to operational time constraints, there was not enough time to administer both to the Soldiers. Therefore, half completed the attitudes measure and the other half completed the experimental version of the AIM.

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[2] The Experimental AIM assesses the same constructs as the standard AIM. However, in the experimental AIM, respondents choose from statement pairs as opposed to tetrads.

BCT track classification.

After completing the predictor measures, the Soldiers were divided into the accelerated 7-week BCT track or the standard 9-week BCT track based on the Army's existing assignment process that consisted of their physical fitness and cognitive aptitude scores as well as a subjective assessment by the Drill Sergeants. The classification was not based on the predictor measures which were used for research purposes only.

Criterion Measures Administration

Basic Combat Training-Job Knowledge Test (BCT-JKT) and attitudes measure. The procedure for administrating the criterion measures was the same for the accelerated and standard BCT tracks. Soldiers completed the criterion measures four days before their graduation and after their last field training.

Once the Soldiers had been seated, the test administrator repeated the project briefing and privacy act statement used in the predictor administration. The first measure administered to the Soldiers was the BCT-JKT. Soldiers were told that for this measure there were right and wrong answers and that they were to select the best answer. Soldiers had 30 minutes to complete the BCT-JKT. After completing this measure, the Soldiers then completed the attitudes measure. Soldiers were told there were no right or wrong answers and were given 30 minutes to complete the measure.

Performance ratings. Thirteen Drill Sergeants provided performance ratings of Soldiers they supervised. It was emphasized that these ratings would be used for research purposes only. The ratings would not become part of the Soldiers' permanent record nor would any of their ratings be shared with their chain of command. Because of time constraints, Drill Sergeants were unable to rate all of the Soldiers in their platoon. Instead, Drill Sergeants were asked to select a total of nine Soldiers to rate with three generally being top performers, three average performers, and three below average performers. Drill Sergeants were given explicit instructions that the category of the Soldier, e.g., top performer, average performer, etc. was to serve only as an overall guideline. A top performer could be rated poorly on individual dimensions and conversely a below average performer could be rated highly on individual dimensions.

The reason this method was chosen for Soldier performance ratings was that there was no means of determining in advance which Drill Sergeants would participate and which Soldiers they had trained. We were provided with a Soldier roster which we, in turn, provided to Drill Sergeants on the day of testing so that they could select Soldiers to rate. Because we had access to Drill Sergeants for only 30 minutes, we did not have time for them to identify Soldiers whom they had trained and then for us to select a random sample for them to rate.

Moreover, we were concerned about Drill Sergeants selecting only their top performers or worst performers to rate because both types would be more memorable than average performers. Thus, to avoid any conscious or unconscious selection biases, we asked them to select a range of Soldiers in terms of their performance.

Results

Initially, the predictor and criterion data were analyzed for the accelerated BCT track only because of the start of the next incoming class of Soldiers. Army personnel wanted to incorporate the non-cognitive predictor measures with the APFT and GT scores as soon as possible because they anticipated that the non-cognitive measures would improve the overall performance of the Soldiers selected for the accelerated track. In order to achieve this goal, the analyses had to be completed before the Soldiers in the standard BCT track concluded their course of instruction.

Descriptive Statistics

The accelerated group consisted of 121 Soldiers, of whom 111 completed both the predictor and the criterion measures. Because the full sample of participants in both the accelerated and standard BCT groups completed the RBI whereas only half of the sample completed the AIM, it was decided to assess the effectiveness of the RBI as a predictor of BCT outcomes. Descriptive statistics for the predictor measures administered to the accelerated and the standard track Soldiers are presented in Table 6. Table 7 presents the descriptive statistics for the criterion measures administered to the accelerated track Soldiers.

Table 6. Predictor Descriptive Statistics for the Accelerated and Standard Soldiers in the Development Sample

	# Items	*n*	*M*	*SD*	*n*	*M*	SD	*t*-value
		Standard			**Accelerated**			
Predictors								
RBI: Peer Leadership	6	709	3.74	.66	106	3.84	.64	1.59
RBI: Cognitive Flexibility	8	748	3.74	.61	111	3.86	.62	2.03*
RBI: Achievement Motivation	9	768	3.64	.57	111	3.74	.54	1.46
RBI: Fitness Motivation	7	751	3.25	.70	111	3.69	.62	2.37**
RBI: Interpersonal Skills	5	677	3.92	.74	104	4.03	.67	.37
RBI: Stress Tolerance	11	760	3.01	.57	111	3.20	.53	3.28**
RBI: Hostility to Authority	7	719	2.48	.61	107	2.37	.61	-2.32*
RBI: Self-efficacy	6	768	4.10	.53	111	4.25	.48	2.13*
RBI: Cultural Tolerance	5	642	3.99	.67	99	4.07	.63	1.21
RBI: Internal Locus of Control	8	757	3.75	.57	111	3.96	.54	3.44*
RBI: Army Affective Commitment	7	755	3.76	.65	111	3.91	.59	1.55
RBI: Respect for Authority	4	684	3.61	.77	104	3.77	.66	2.94**
Army-specific Self-efficacy	6	360	4.39	.73	53	4.58	.48	-1.99*
Affective Commitment	4	360	4.21	.79	53	4.08	.76	3.83**
Continuance Commitment	5	360	3.53	1.00	53	3.23	1.02	3.66**
Organizational Identification	6	360	4.00	.76	53	3.90	.79	2.60**
Desire for an Army Career	7	360	3.72	.68	53	3.65	.73	3.62**
Self-efficacy	3	357	4.42	.59	53	4.58	.45	-1.28
Army Expectations	4	359	3.86	.83	53	3.78	.73	-.79
GT score	-	437	112.46	9.42	111	115.16	9.75	1.84*
Pre-training APFT[1]	-	437	93.30	63.40	121	168.70	31.14	19.72**

Note. *p < .05, **p < .01. All measures used a 5-point scale unless otherwise noted. [1]APFT scores range from 0-300. A score of 170 is required for graduation.

Table 7. Criteria Descriptive Statistics for the Accelerated Soldiers in the Development Sample

	# Items	n	M	SD
Criteria				
BCT JKT[1]	43	118	29.97	3.77
DS composite rating[2]	11	54	5.17	1.33
DS overall effectiveness rating[2]	1	54	5.17	1.48
BRM score[3]	-	121	29.00	3.70
Post-training APFT[4]	-	121	250.75	30.92
Army-specific Self-efficacy	6	123	4.68	.45
Affective Commitment	4	123	4.31	.65
Continuance Commitment	5	123	3.25	1.42
Organizational Identification	6	123	4.25	.66
Desire for an Army Career	7	123	3.87	.65
Self-efficacy	3	123	4.57	.51
Army Expectations	4	123	3.79	.68

Note. All measures used a 5-point scale unless otherwise noted. [1]BCT JKT scores range from 0-43. [2]DS ratings were made on a 7-point scale. [3]BRM scores range from 0-40. [4]APFT scores range from 0-300. A score of 170 is required for graduation.

Predictor Measures

Rational Biodata Inventory (RBI). The reliability estimates for the RBI scales were acceptable; α ranged from .68 to .79 (see Table A1 in Appendix A). Most of the scales correlated significantly with each other with four correlations exceeding .50. Only the Hostility to Authority scale had numerous non-significant relations with other RBI scales. This pattern of results is similar to the results obtained in previous ARI research (Knapp & Tremble, 2007). Consistent with prior uses of the RBI (e.g., Knapp & Tremble, 2007), the scales were adjusted such that the correlations of the predictor scores with the Lie score was no greater than $r = .05$.

Pre-training attitudes measure. The reliability estimates for the attitude scales were acceptable; α's range from .73 to .93 (see Table A1). All of the scales were significantly related to one another with three correlations equal to or exceeding .50. These results replicate previous research (Knapp & Tremble, 2007; Lee et al.1992,; Mael & Ashforth, 1992; Meyer & Allen, 1997).

Predictor cross-measure correlations. An examination of the correlations between the RBI and attitudes measure shows that four of the RBI scales, Fitness Motivation, Interpersonal Skills, Self-efficacy, and Army Affective Commitment, were significantly related to six of the seven attitude scales (see Table A1). The Hostility to Authority scale was not significantly related to any of the attitude scales. Further, two of the attitude scales, Army-specific Self-efficacy and Self-efficacy, were significantly related to 10 of the 12 RBI scales whereas Continuance Commitment was significantly related to only two of the RBI scales, Interpersonal Skills ($r = .19$, $p < .01$) and Army Affective Commitment ($r = .19$, $p < .05$). The results demonstrate that, although there is some overlap, the measures are addressing distinct constructs.

The cognitive aptitude measure, GT score, significantly positively correlated with two RBI scales, Cognitive Flexibility and Internal Locus of Control, r's = .19, and .23, p's < .05, respectively and significantly negatively correlated with Hostility to Authority, -.28. GT score

was significantly negatively correlated with three of the attitude scales, Continuance Commitment, Organizational Identification, and Expectations, r's = -.21, -.16, and -.19, p's < .05, respectively.

The physical fitness measure, pre-training APFT, was significantly correlated with six of the RBI scales, Achievement, r = .18, p < .05, Fitness Motivation, r = .51, p < .01, Self-efficacy, r = .16, p < .05, Locus of Control, r = .19, p < .05, Army Affective Commitment, r = .17, p < .05, and Respect for Authority, r = .25, p < .01. The pre-training APFT was significantly related to three attitude scales, Army-specific Self-efficacy, Continuance Commitment, and Self-efficacy, r's = .31, -.17, and .22, p's < .05, respectively. Additionally, the GT and APFT scores were significantly correlated, r = .16, p < .01.

Criteria

BCT-JKT. The BCT-JKT mean score was 30 correct out of 43 items (69.7%) with a range of scores from 19 to 40 (see Table 7). The results indicate that the test was challenging, but not too challenging.

Post-training attitudes measure. The reliability estimates for the attitude scales were acceptable; α's ranged from .71 to .88 (see Table A1). With the exception of the relation between Continuance Commitment and Army Expectations, all of the scales were significantly related to one another with nine correlations equal to or exceeding .50.

Drill Sergeant ratings. Previous research with the behaviorally anchored rating scales has demonstrated that the measure is unidimensional (Knapp et al., 2004; Knapp & Tremble, 2007). Therefore, two scores were analyzed for Drill Sergeant Ratings. One score was the average rating for the 11 individual dimensions which is labeled the Drill Sergeant Ratings Composite. The other score was the Drill Sergeants' ratings of the overall effectiveness of the Soldier which is labeled Drill Sergeants Rating Overall. Thus, we can compare the calculated average of the 11 dimensions to the one overall rating. As can be seen in Table 7, the means and standard deviations are quite similar for the composite and overall ratings. Moreover, the correlation between them was .91, p < .01.

Criterion cross-measure correlations. The Drill Sergeant composite and overall ratings showed a similar pattern of correlations with post-training APFT, r's = .29 and .33, p's < .05, respectively, Army-specific Self-efficacy, r's = .37 and .35, p's < .01, respectively, Affective Commitment, r's = .30 and .32, p's < .05, respectively (see Table A1). The Drill Sergeant overall rating also was significantly related to Basic Rifle Marksmanship, r = .20, p < .05. The BCT-JKT was significantly linked to the Drill Sergeant composite rating, r = .30, p < .05, the Basic Rifle Marksmanship score, r = .24, p < .05, Army-specific Self-efficacy, r = .18, p < .01, and Affective Commitment, r = .17, p < .01. Post-training APFT was significantly linked to Army-specific Self-efficacy, r = .18, p < .05 and Basic Rifle Marksmanship, r = .21, p < .01. Finally, the Basic Rifle Marksmanship score was significantly correlated with Army-specific Self-efficacy, r = .25, p < .01.

Validity Estimates

The BCT- JKT score was significantly related to the RBI scales Cognitive Flexibility, $r = .15$, $p < .05$, Fitness Motivation, $r = .19$, $p < .01$, Stress Tolerance, $r = .22$, $p < .05$, Hostility to Authority, $r = -.20$, $p < .01$, Cultural Tolerance, $r = .24$, $p < .01$, and Army Affective Commitment, $r = .13$, $p < .05$ (see Table A1). As expected, the BCT-JKT was significantly correlated with the GT score, $r = .31$, $p < .01$, but also was significantly linked to the pre-training APFT, $r = .16$, $p < .05$.

As expected, the Drill Sergeant Composite and Overall ratings showed a similar pattern of results with the predictor measures (see Table A1). The Composite and Overall ratings were significantly linked to the RBI scales Fitness Motivation, $r = .35$, $p < .05$ and $r = .34$, $p < .05$, respectively, Self-efficacy, $r = .46$, $p < .01$ and $r = .39$, $p < .01$, respectively, and Army Affective Commitment, $r = .37$, $p < .05$ and $r = .42$, $p < .01$, respectively. Further, the Composite rating was significantly correlated with the RBI scale Internal Locus of Control, $r = .37$, $p < .05$ and the Overall rating was significantly correlated with the RBI scale Achievement Motivation, $r = .32$, $p < .05$. Finally, pre-training APFT was significantly related to the composite and overall ratings, $r = .30$, $p < .05$ and $r = .33$, $p < .05$, respectively.

The Basic Rifle Marksmanship score was significantly related to the RBI scales Fitness Motivation, $r = .30$, $p < .01$ and Army Affective Commitment, $r = .21$, $p < .05$ as well as pre-training APFT, $r = .20$, $p < .05$ (see Table A1). The post-training APFT score was significantly related to the RBI scale Fitness Motivation, $r = .35$, $p < .01$ and the pre-training APFT score, $r = .56$, $p < .01$ (see Table A1).

As anticipated, many of the pre-training attitudes were significantly related to post-training attitudes (see Table A1), although they were not significantly related to the other criteria. For each construct, there is a significant correlation between the pre- and post-training administrations: Army-specific Self-efficacy, $r = .44$, Affective Commitment, $r = .56$, Continuance Commitment, $r = .50$, Organizational Identification, $r = .58$, Desire for an Army Career, $r = .69$, Self-efficacy, $r = .59$, and Army Expectations, $r = .49$, all p's $< .01$.

GT score was significantly negatively linked to post-training Continuance Commitment, $r = -.25$, $p < .01$, Desire for an Army Career, $r = -.20$, $p < .05$, and Army Expectations, $r = -.26$, $p < .05$. Pre-training APFT was significantly positively related to post-training Army-specific Self-efficacy, $r = .24$, $p < .01$, Affective Commitment, $r = .23$, $p < .01$, Organizational Identification, $r = .21$, $p < .01$, and Self-efficacy, $r = .22$, $p < .05$.

The validity estimates for the measures when administered to the accelerated Soldiers partially fulfill the first purpose of this research. These estimates establish that a strong relationship exists between the outcomes of job knowledge, performance (post-training APFT, BRM scores) and supervisor ratings and one or more of the RBI scales. Although these relationships are informative, they are just the first step in the analyses needed to meet the second research goal, which was to determine if the RBI could supplement the current criteria used for BCT track assignment (GT score and pre-training APFT). Thus, the feasibility of developing an experimental selection tool for accelerated BCT that incorporates cognitive,

physical, and non-cognitive attributes was examined. Therefore, regression analyses were conducted to determine which RBI sub-scales predicted unique variance of the criterion measures when also considering GT score and pre-training APFT score.

Regression Analyses

Five stepwise regressions were conducted with the RBI, pre-training APFT, and GT scores each regressed on Drill Sergeant rating (composite and overall), BCT-JKT, post-training APFT, and BRM. The attitudes measure was not used because of the low sample size when combined with DS ratings. GT scores, $\beta = .44$, $p < .05$, Self-efficacy, $\beta = .40$, $p < .05$, Achievement Motivation, $\beta = .23$, $p < .05$, and Internal Locus of Control, $\beta = .19$, $p < .05$, were significant predictors of the BCT JKT, $F = 10.86$, $p < .05$. For the Drill Sergeants' composite ratings, only Self-efficacy was a significant predictor, $F = 10.29$, $p < .05$, $\beta = .45$, $p < .05$. Self-efficacy, $\beta = .48$, $p < .05$, Army Affective Commitment, $\beta = .42$, $p < .05$, and Stress Tolerance, $\beta = .35$, $p < .05$, were significant predictors of Drill Sergeants' overall effectiveness ratings, $F = 7.07$, $p < .05$. For Final APFT score, pre-training APFT was the only significant predictor, $\beta = .57$, $p < .05$, $F = 41.61$, $p < .05$. BRM was significantly predicted by Fitness Motivation, $\beta = .32$, $p < .05$, and Cultural Tolerance, $\beta = .21$, $p < .05$, $F = 9.00$, $p < .05$.

The results demonstrate that the training performance criteria are quite diverse, which is supported by the intercorrelations (see Table A1). The objective, nonetheless, was to develop an experimental selection tool that maximized, yet balanced, the prediction of the first four criteria listed above, excluding BRM and attitudes, to identify Soldiers who are well-prepared in the critical performance areas. BRM was not included because it was not hypothesized to be related to any of the non-cognitive predictors. The attitude scales were not used as criteria because the sample size was too small to support such a large number of analyses. Using previous research as a guide and the stepwise regression results as a starting point, all of the significant predictor measures were combined into a weighted equation that maximized the prediction of the criteria. The final weights for the equation were Fitness Motivation (2.0), Self-efficacy (1.0), GT score (.95), pre-training APFT (.57), Stress Tolerance (.48), Army Affective Commitment (.42), Cultural Tolerance (.20), Achievement Motivation (.20), and Internal Locus of Control (.20). The correlations between the predictor composite score and each criterion are shown in Table 8. Even though BRM and the attitudes measure were not included in the development of the experimental selection tool, a sample of these correlations are shown in Table 8 to demonstrate that the weighted predictor battery was significantly related to these valued outcomes.

Table 8. Correlations between Predictor Battery and Criteria for Development Sample

	DS Ratings Ave.	DS Overall Ratings	BCT JKT	APFT	BRM	Affective Commitment	Organizational Identification
Predictor Battery	.45**	.46**	.41**	.33**	.25*	.32*	.26*

*Note. * $p < .05$; ** $p < .01$.*

Discussion

Despite the small sample size of students in the accelerated course, it was possible to derive a predictor battery that maximized the critical criteria with very little deviation from the ß-weights found in the individual regressions. Two noteworthy exceptions that required more deviation from the regression ß-weights are the pre-training APFT and GT scores. Because these predictors were used for the accelerated course selection, range restriction was inevitable. The weights for these predictors, and fitness motivation due to its high correlation with physical fitness, were intentionally inflated when used for operational purposes. Although the attitudes criteria were not part of the predictor battery development process, the predictor battery was significantly related to these criteria. With larger sample sizes in future research, the attitude criteria would be viable factors to include when creating a predictor battery.

There is noticeable overlap between the characteristics Detrick and Chibnall (2006) identified for high performing police cadets and those examined for Soldiers in the current research. Although different labels were used, it appears that three of the dimensions are similar. The Self-efficacy construct is very similar to self-confidence as defined by Detrick and Chibnall (2006) in that both refer to the belief that one has the ability to succeed. Stress Tolerance and Vulnerability reflect steadiness under stress. Achievement Motivation and Achievement Striving both describe high goal-setters who are diligent toward reaching their goals. Both Basic Combat Training and police academy training immerse the participants in entirely new and demanding environments. These three dimensions should help individuals handle the difficult environments with success. If Soldiers possess the psychological capability of tolerating a stressful environment such as Basic Combat Training, then this buffer should help performance, as well as prevent them from suffering from negative thoughts and emotions due to the stress. Possessing self-confidence and a need for achievement also should make it more likely that people will succeed. Thus, the consistency of these research findings suggests that employing non-cognitive attributes along with cognitive aptitude and physical fitness provide a viable means of identifying more highly qualified candidates for an accelerated Basic Combat Training program.

Summary of the Development Standard Track

Although the data from the standard track Soldiers were not included in the development of the experimental selection tool, a comparison with the accelerated track Soldiers' data is justified. The accelerated track Soldiers reported scores significantly higher than did the standard track Soldiers on several RBI scales including Cognitive Flexibility, Fitness Motivation, Stress Tolerance, Hostility to Authority, Internal Locus of Control, Army Affective Commitment, and Respect for Authority (see Table 6). For the attitudes scales, the results were mixed with the accelerated track Soldiers generally reporting higher scores. These results were quite surprising since the predictor measures were not used to select the Soldiers for the accelerated track. It suggests that the Drill Sergeants may make accurate assessments of these characteristics without specific measurement. Not surprisingly, the accelerated track Soldiers scored significantly higher on the cognitive aptitude and physical fitness tests since these scores were used for selection to the accelerated track. The significant differences for cognitive aptitude and physical fitness also could explain why the accelerated and standard groups differed significantly on several RBI scales. In the accelerated group, GT score correlated significantly

with three RBI scales and physical fitness correlated with six RBI scales. These scales also correlated significantly with most of the other RBI scales. Thus, just selecting by GT score and physical fitness, one also would be implicitly selecting on some of the constructs assessed by the RBI.

An evaluation of the correlations for the accelerated track (Table A1) and the standard track (Table A2) for the development sample revealed a consistent pattern. Most correlations were of the same magnitude and direction. Due to scheduling and other logistical issues, no usable criterion data were collected for the standard track.

Selection Equation Validation

The next step in this research was to validate longitudinally and modify the experimental selection tool based on operational data. The Army operationally used the experimental predictor equation developed in the current research to assign Soldiers to either the accelerated or standard BCT track for two subsequent BCT classes. Criterion data were collected from these classes so that the experimental selection equation could be further validated and adjusted if necessary. In addition, it also was possible to conduct analyses comparing the accelerated and standard classes in terms of job performance and attitude criteria.

Method

Participants

Predictor and criterion data were available for 1285 Soldiers. The Soldiers represented 96 different Army jobs. The Soldiers reported their race as White (41%), African American (24%), Hispanic (15%), or Asian (8.7%). With regard to gender, 66% of the Soldiers were male and 34% were female. Soldiers were told that participation was voluntary, but that the results would be used to determine who was assigned to the accelerated training program. If they did choose to participate, the only information that would be provided to Army personnel would be a single number that represented their overall score on all of the measures including their pre-training APFT and GT scores. The Soldiers were assured of confidentiality for all of their individual responses. Based on the predictor battery scores, Soldiers were assigned to accelerated training ($n = 283$ at completion) or standard training ($n = 985$ at completion).

Measures

The measures used in the validation were identical to those used to develop the selection equation. The AIM measure was not included as a predictor.

Procedure

Assessment procedure. The procedure was virtually identical to that used in the development data collection with three exceptions. The first exception was that the Soldiers knew the tests counted for selection to the accelerated track. Second, all of the Soldiers took the attitude measures. The final exception was that the Soldiers were assigned to accelerated training based on the predictor battery using the non-cognitive measures.

Assignment procedure. The Soldiers, based on their overall scores derived from the experimental selection equation, were rank-ordered and selected using a top-down approach. The overall selection did not meet operational needs (e.g., housing requirements mandated a particular ratio of males to females), therefore slightly more females were selected than the equation would have recommended. Soldiers who refused participation or could not complete the measures for other reasons were assigned to the standard track.

Results

Descriptive Statistics

The data for the validation research were collected from two distinct classes of Soldiers, but the classes did not differ on demographic characteristics or the predictor measures so they were combined.[3] The descriptive statistics for the predictors are shown in Table 9 and those for the criteria in Table 10.

Table 9. Descriptive Statistics for the Validation Sample Predictors

	# Items	*n*	*M*	SD	*n*	*M*	SD	t-test
		Standard			**Accelerated**			
Predictors								
RBI: Peer Leadership	6	742	3.81	.67	272	4.00	.56	3.88**
RBI: Cognitive Flexibility	8	809	3.87	.60	274	4.06	.53	4.60**
RBI: Achievement Motivation	9	869	3.77	.59	281	3.97	.47	5.22**
RBI: Fitness Motivation	7	811	3.22	.64	274	3.73	.51	12.01**
RBI: Interpersonal Skills	5	675	4.10	.70	269	4.19	.61	1.96*
RBI: Stress Tolerance	11	844	3.34	.54	280	3.55	.46	5.95*
RBI: Hostility to Authority	7	773	2.18	.55	273	2.09	.44	-2.39*
RBI: Self-efficacy	6	869	4.18	.51	281	4.39	.38	6.34**
RBI: Cultural Tolerance	5	596	4.19	.58	261	4.29	.48	2.34*
RBI: Internal Locus of Control	8	837	3.94	.55	278	4.15	.45	5.72**
RBI: Army Affective Commitment	7	821	3.99	.55	277	4.22	.46	6.23**
RBI: Respect for authority	4	691	3.86	.67	269	3.94	.58	1.85
Army-specific Self-efficacy	6	852	4.48	.70	277	4.70	.60	4.74**
Affective Commitment	4	853	4.25	.66	277	4.42	.63	3.66**
Continuance Commitment	5	852	3.55	.92	277	3.54	.93	-.12
Organizational Identification	6	851	3.96	.64	277	4.04	.59	1.79
Desire for an Army Career	7	848	3.99	.67	277	4.15	.58	3.63**
Self-efficacy	3	845	4.48	.59	276	4.63	.47	3.90**
Army Expectations	4	848	3.87	.78	277	4.14	.67	-.07
GT score	-	694	101.42	11.26	281	109.86	11.19	4.38**
Pre-Training APFT[1]	-	261	104.32	46.66	141	158.86	37.03	11.95**

*Note. *p* < .05, **p* < .01.*

Predictor Measures

The reliability estimates for the predictor measures were acceptable and comparable to those found in the development sample, α's range from .64 to .81 (see Tables B1 and B2 in Appendix B for the accelerated and standard track results, respectively).

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[3] Results available from the authors.

All of the RBI scales were significantly correlated with one another with the exception of Hostility to Authority for both accelerated and standard track Soldiers. For the accelerated track Soldiers, four of the RBI scales had intercorrelations equal to or exceeding .50 (see Table B1) whereas, for the standard track Soldiers, nine of the RBI scales had intercorrelations equal to or exceeding .50 (see Table B2) although the magnitude does not suggest that multicollinearity is a concern.

Likewise, the reliability estimates for the attitudes measure were acceptable; α's range from .71 to .94 (see Tables B1 and B2 for the accelerated and standard track results, respectively), and were comparable to those found in the development sample. For the accelerated and standard track Soldiers, all of the attitude scales were significantly correlated with one another with the exception of one correlation for the accelerated track. The correlations equaled or exceeded .50 for two relations of the accelerated track and nine of the standard track (see Tables B1 and B2). A comparison of the means between the development sample and the validation sample shows that the Soldiers had statistically significant higher means for most predictors in the validation sample regardless of whether they were in the accelerated or standard track (see Table 11). This result is not surprising since Soldiers take the tests more seriously and do their best to present the "right" image when the tests count for something they value.

For the accelerated track Soldiers, the RBI scales were significantly correlated with the attitude scales with two general exceptions (see Table B1). First, the Continuance Commitment measure was only significantly negatively correlated with the RBI Cultural Tolerance Scale, $r = -.15$, $p < .01$. Second, the RBI Respect for Authority scale only had significant positive correlations with Organizational Identification $r = .20$, $p < .05$, and Self-Efficacy, $r = .16$, $p < .01$.

The correlations between the traditional Army predictors, GT score and APFT, and the non-cognitive measures were somewhat different for the accelerated and standard track Soldiers (see Tables B1 and B2). For the accelerated track Soldiers, the GT score was significantly negatively related to two RBI scales, Fitness Motivation, $r = -.18$, $p < .01$, Hostility to Authority, $r = -.12$, $p < .05$, and positively to Internal Locus of Control, $r = .21$, $p < .01$. For the standard track Soldiers, the GT score was significantly positively related to three RBI scales, Cognitive Flexibility, $r = .19$, $p < .01$, Stress Tolerance, $r = .16$, $p < .01$, and Internal Locus of Control, $r = .20$, $p < .01$ and negatively related to Hostility to Authority, $r = -.11$, $p < .05$. These results differ from the development sample in which eight of the twelve RBI scales were significantly correlated with the GT score. For the accelerated track Soldiers, none of the RBI scales was significantly related to the GT scores. For the standard track Soldiers, GT scores were negatively related to Continuance Commitment, $r = -.09$, $p < .05$, and Self-efficacy, $r = -.09$, $p < .05$.

In contrast to the findings for the development sample, only two RBI scales for the accelerated track, Fitness Motivation and Respect for Authority, were significantly positively correlated with pre-training APFT, $r = .28$, $p < .01$, and $r = .18$, $p < .05$, respectively. For the accelerated track Soldiers, pre-training APFT was not significantly correlated with the attitude scales, whereas there were three significant correlations for the standard track Soldiers (see Tables B1 and B2).

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The post-training attitudes measure had acceptable reliability estimates; α's ranged from .68 to .82 (see Tables B1 and B2). The criterion means for the validation sample were either equivalent to or slightly lower than the development sample criterion means (see Table 10). All of the post-training attitude scales were significantly correlated with each other with the exception of Affective and Continuance Commitment for the accelerated track Soldiers.

Table 10. Descriptive Statistics for the Validation Sample Criteria

	# Items	*n*	*M*	*SD*	*n*	*M*	SD	t-test
		Standard			**Accelerated**			
Criteria								
BCT JKT[1]	43	985	25.95	5.40	271	29.58	4.34	10.19**
DS composite rating[2]	11	122	4.50	1.89	66	4.95	1.53	1.69
DS overall effectiveness rating[2]	1	122	4.50	2.16	57	5.08	1.72	1.78
BRM score[3]	-	146	30.27	15.43	140	28.99	4.00	-.95
Post-Training APFT[4]	-	191	222.23	37.28	138	213.65	50.58	-1.77
Army-specific Self-efficacy	6	971	4.49	.57	271	4.70	.41	5.63**
Affective Commitment	4	971	4.09	.68	271	4.27	.62	3.98**
Continuance Commitment	5	970	3.38	.92	271	3.32	.99	-.97
Organizational Identification	6	970	3.91	.64	270	4.07	.61	3.84**
Desire for an Army Career	7	969	3.50	.60	270	3.80	.68	7.09**
Self-efficacy	3	968	4.46	.58	271	4.62	.45	4.22**
Army Expectations	4	970	3.86	.72	271	4.12	.67	5.25**

Note. All measures were a 5-point scale unless otherwise noted. [1]BCT JKT scores range from 0-43. [2]DS ratings were made on a 7-point scale. [3]BRM scores range from 0-40. [4]APFT scores range from 0-300. A score of 170 is required for graduation.*$p < .05$; **$p < .01$.

As shown in Table 10, Soldiers in the validation accelerated track did indeed perform better than did Soldiers in the validation standard track on a variety of criteria. First, they scored better on the BCT-JKT, $t(1254) = 10.19$, $p < .01$. The mean number of items correct on the BCT-JKT was 25.95 and 29.58 for the standard and accelerated Soldiers, respectively. For the accelerated Soldiers, this number is comparable to the development sample. The validation accelerated track Soldiers also reported greater levels of Army Affective Commitment $t(1240) = 3.98$, $p < .01$, Army Specific Self-efficacy, $t(1240) = 5.63$, $p < .01$, Organizational Identification, $t(1237) = 4.22$, $p < .01$, Desire for an Army Career, $t(1240) = 3.98$, $p < .01$, Self-efficacy , $t(1238) = 3.84$, $p < .01$, and Army Expectations, $t(1239) = 5.25$, $p < .01$. Although the findings for Drill Sergeant ratings (composite and overall) and post-training APFT were not significant, they approached significance ($p's < .10$).

The correlation between the Drill Sergeants' composite ratings and overall ratings was significant, $r = .95$, $p < .01$. The BCT-JKT was significantly related to the Drill Sergeants' composite rating, $r = .16$, $p < .05$, as well as five of the post-training attitude scales, Army-specific Self-efficacy, $r = .16$, $p < .01$, Affective Commitment, $r = .11$, $p < .05$, Organizational Identity, $r = .09$, $p < .01$, Self-efficacy, $r = .13$, $p < .01$, and Expectations, $r = .08$, $p < .01$. In addition to the BCT-JKT, the Drill Sergeants' composite ratings were significantly related to BRM score, $r = .32$, $p < .01$, post-training APFT, $r = .35$, $p < .01$, Army-specific Self-efficacy, $r = .26$, $p < .01$, Affective Commitment, $r = .24$, $p < .01$, and Organizational Identity, $r = .18$, $p <$

.05. Drill Sergeants' overall ratings were significantly related to most of the same criteria including BRM score, $r = .39$, $p < .01$, post-training APFT, $r = .42$, $p < .01$, Army-specific Self-efficacy, $r = .28$, $p < .01$, and Affective Commitment, $r = .21$, $p < .05$.

BRM and post-training APFT were significantly correlated, $r = .17$, $p < .01$; however, neither had significant correlations with the post-training attitudes measure.

Validity Estimates

Accelerated track. The BCT-JKT score was not significantly related to the RBI scales. This finding differs from the development sample in which it correlated with six RBI scales. As expected, BCT-JKT was correlated significantly with GT score, $r = .45$ $p < .01$, but also was significantly related to APFT, $r = .17$, $p < .05$ (see Table B1). This pattern of findings replicates the findings of the development sample.

Drill Sergeant Overall ratings correlated significantly with one RBI scale, Stress Tolerance, $r = .27$, $p < .05$ whereas the Drill Sergeant Rating Composite did not correlate significantly with the RBI scales. This finding contrasts to the validity estimates of the development portion of this research in which these criteria each correlated with five RBI scales, but Stress Tolerance was not one of them. In addition, no significant relationships were found for either of these criterion variables and pre-training APFT. In the development sample, both criteria were related to pre-training APFT.

The BRM score was not correlated with any predictor measure whereas in the development sample it was related to Fitness Motivation, Army Affective Commitment, and pre-training APFT. The only predictor that predicted post-training APFT was pre-training APFT, $r = .63$, $p < .01$ (see Table B1).

As anticipated, many of the pre-training attitudes were significantly related to post-training attitudes (see Table B1). For each construct there was a significant correlation between the pre- and post-training administrations, Army Specific Self-efficacy, $r = .14$, $p < .01$, Affective Commitment, $r = .42$, $p < .01$, Continuance Commitment, $r = .57$, $p < .01$, Organizational Identification, $r = .44$, $p < .01$, Desire for an Army Career, $r = .53$, $p < .01$, Self-efficacy, $r = .35$, $p < .01$, and Army Expectations, $r = .49$, $p < .01$. These findings were similar to those found in the development sample, although overall the correlations were lower. In addition, pre-training Affective Commitment predicted the Drill Sergeant Overall ratings, $r = .25$, $p < .05$.

GT score negatively correlated with post-training Army Specific Self-efficacy, $r = -.14$, $p < .05$ and Desire for an Army Career, $r = -.14$, $p < .05$. The latter relationship also was found in the development sample.

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Table 11. RBI t-tests between the Development and Validation Samples

	# Items	n	M	SD	n	M	SD	t-test
		Development			**Validation**			
Predictors								
RBI: Peer Leadership	6	252	3.77	.64	1269	3.89	.64	-2.78*
RBI: Cognitive Flexibility	8	263	3.78	.63	1349	3.94	.58	-3.97**
RBI: Achievement Motivation	9	263	3.67	.55	1426	3.83	.56	-4.14**
RBI: Fitness Motivation	7	263	3.40	.68	1351	3.33	.67	1.50
RBI: Interpersonal Skills	5	244	4.02	.74	1179	4.13	.67	-2.40*
RBI: Stress Tolerance	11	263	3.08	.54	1396	3.39	.52	-8.79**
RBI: Hostility to Authority	7	253	2.48	.63	1306	2.16	.52	8.42**
RBI: Self-efficacy	6	263	4.18	.50	1426	4.24	.50	-1.93
RBI: Cultural Tolerance	5	232	4.04	.64	1068	4.23	.56	-4.37**
RBI: Internal Locus of Control	8	263	3.82	.56	1387	3.99	.53	-4.69**
RBI: Army Affective Commitment	7	263	3.84	.63	1367	4.06	.54	-5.82**
RBI: Respect for authority	4	245	3.68	.70	1200	3.89	.65	-4.55**

Note. *$p < .05$; **$p < .01$.

Standard track. Unlike in the development research, criterion data were obtained for the standard track Soldiers (see Table B2). The BCT-JKT score was significantly related to the RBI scales, Peer Leadership, $r = .07$, $p < .05$, Cognitive Flexibility, $r = .12$, $p < .01$, Stress Tolerance, $r = .17$, $p < .01$, Hostility to Authority, $r = -.16$, $p < .01$, Internal Locus of Control, $r = .17$, $p < .05$, and Army Affective Commitment, $r = .10$, $p < .01$. Not surprisingly, GT score correlated with BCT-JKT, $r = .43$, $p < .01$.

Drill Sergeant Overall ratings and Drill Sergeant Composite ratings correlated significantly with the RBI scale Fitness Motivation, $r = .30$, $p < .01$ and $r = .29$, $p < .01$ respectively. No other predictors correlated significantly with the Drill Sergeant ratings criteria.

BRM was not related significantly to any of the predictor measures. The only predictor that correlated significantly with post-training APFT was pre-training APFT, $r = .63$, $p < .01$.

As anticipated, many of the pre-training attitudes were significantly related to post-training attitudes. For each construct there was a significant correlation between the pre- and post-training administrations, Army Specific Self-efficacy, $r = .29$, $p < .01$, Affective Commitment, $r = .35$, $p < .01$, Continuance Commitment, $r = .44$, $p < .01$, Organizational Identification, $r = .38$, $p < .01$, Desire for an Army Career, $r = .27$, $p < .01$, Self-efficacy, $r = .32$, $p < .01$, and Army Expectations, $r = .31$, $p < .01$.

The second step in the analyses was to conduct stepwise regressions to determine which RBI scales predicted unique variance of the criterion measures when also considering GT score and pre-training APFT. These findings could then be compared to the findings obtained in the development sample to ascertain whether the experimental tool could be applied for future BCT assignments or whether changes were necessary for the selection battery.

Regression Analyses

The regression analyses were based on the relationships among predictors and criteria for the entire validation sample. Validity estimates for the accelerated and standard tracks were

presented separately because the predictor battery was based entirely on the accelerated sample in the development research due to time constraints. Therefore, for comparison purposes, validity estimates for each track were presented. However, when conducting regression equations for the purposes of generating a prediction equation, it is best to use the entire sample because it is more representative of the BCT Soldier population. The correlations among predictors and criteria for the entire sample are presented in Table B3.

Consistent with the development analyses, five stepwise regressions were conducted with RBI, pre-training APFT, and GT scores (recall that attitude measures were not used in the development regression analyses because of low sample size when combined with DS ratings) regressed on the BCT-JKT, Drill Sergeant ratings (composite and overall), post-training APFT, and BRM. GT Score, $\beta = .45$, $p < .01$, and Stress Tolerance, $\beta = .10$, $p < .05$, were significant predictors of the BCT JKT, $F = 46.7$, $p < .01$. For the Drill Sergeants Composite rating, only GT score, $\beta = .33$, $p < .05$, was a significant predictor, $F = 6.20$, $p < .05$. Only pre-training APFT, $\beta = .29$, $p < .05$, was a significant predictor of Drill Sergeants' overall effectiveness ratings, $F = 4.62$, $p < .05$. For post-training APFT, only pre-training APFT, $\beta = .63$, $p < .01$, was a significant predictor, $F = 43.10$, $p < .01$. BRM was not related to any of the predictor variables.

This pattern of findings is different from that of the development research. Although, as expected, GT score predicted BCT JKT scores both in the development and validation research, the three RBI scales that were significant predictors in addition to GT score, were not significant in the validation work. However, one RBI scale, Stress Tolerance, did significantly predict BCT-JKT score. Whereas RBI scales predicted Drill Sergeant ratings (average and composite) in the development research, no such unique relationships were found in the validation work. The only unique predictors were GT score for the composite rating and pre-training APFT for the overall effectiveness. Thus, the non-cognitive predictors did not predict as much unique variance in the validation research as in the development research.

Although, the regression analyses did not support the development findings, as shown in Table 12, several of the correlations of the predictor composite score and the criteria are encouraging. The composite score predicted job knowledge, job performance ratings, and attitudes with regard to the Army.

Table 12. Correlations between Predictor Battery and Criteria for Validation Sample

	DS Ratings Ave.	DS Overall Ratings	BCT JKT	APFT	BRM	Affective Commitment	Organizational Identification
Predictor Battery	.28**	.28**	.24**	.05	.05	.24**	.21**

Note. * $p < .05$; ** $p < .01$.

Discussion

Summary of Results

The purpose of this research was 1) to assess the relationships of the cognitive, non-cognitive, and physical predictors with valued outcomes such as training performance and attitudes for Soldiers with very short tenure in the Army, 2) to examine the feasibility of developing an experimental selection equation/tool, based on these relationships, and 3) to validate the experimental selection tool in a subsequent longitudinal study.

For the development sample, the cognitive, physical, and non-cognitive measures were significantly related to the full range of criteria as was anticipated. Each of the five criteria, BCT-JKT, Drill Sergeant Composite Ratings, Drill Sergeant Overall Ratings, post-training Physical Fitness, and Basic Rifle Marksmanship, were significantly related to Fitness Motivation and the pre-training Physical Fitness scores and all but post-training Physical Fitness was related to Army Affective Commitment. Furthermore, seven other RBI scales and cognitive aptitude were significantly related to one or more of the criteria.

The validity estimates from the development sample strongly supported the development of an experimental selection tool. Based on these results and prior research, an experimental selection tool consisting of Fitness Motivation, Self-efficacy, GT score, pre-training APFT, Stress Tolerance, Army Affective Commitment, Cultural Tolerance, Achievement Motivation, and Internal Locus of Control was identified. As the selection tool was designed to maximize prediction of BCT-JKT, Drill Sergeant Composite Ratings, Drill Sergeant Overall Ratings, and post-training Physical Fitness, it is not surprising that the predictor composite score was significantly correlated with these criteria (see Table 8). However, it also was significantly correlated with Basic Rifle Marksmanship and several of the attitudinal criteria.

The validity estimates for the entire validation sample of Soldiers who were selected using the experimental selection tool were similar to the validity estimates from the development sample (see Tables A1 and B1). Three of the five criteria, BCT-JKT, Drill Sergeant Composite Ratings, and Drill Sergeant Overall Ratings were significantly related to Self-efficacy. Both types of Drill Sergeant ratings were significantly related to Fitness Motivation. BCT-JKT and Drill Sergeant Composite ratings were significantly related to Stress Tolerance. BCT-JKT and post-training Physical Fitness were significantly related to pre-training Physical Fitness. Further, eight other RBI scales and cognitive aptitude were significantly related to one or more of the criteria. When the validation sample is broken down into the accelerated and standard tracks, fewer significant relationships were obtained for each sample.

Despite this pattern of relationships, the regression analyses did not replicate the findings obtained in the development effort. Only one RBI scale predicted unique variance with a criterion variable, and because this scale did not exhibit the same relationship in the development sample, it is difficult to state with confidence that the scale should be used in a selection tool. Moreover, because the non-cognitive findings of the development research were not replicated, it is not possible to posit that this specific equation should be used in the future as a selection tool.

The mixed results for the validation sample should not be interpreted to imply that using non-cognitive predictors for accelerated BCT is not viable. The validity estimates offer support to the idea that non-cognitive predictors are a useful component for identifying qualified candidates for an accelerated training track. Indeed, in the development research, regression analyses revealed unique predictive ability for such predictors. In addition, in the validation sample, the composite score did correlate significantly with job performance ratings, job knowledge, and attitudes (see Table 12). As will be described in the subsequent section, there were several limitations that hindered the chances of replicating the development research findings. Addressing these limitations will make it more likely to develop a selection tool in a research setting that can be replicated in an operational setting.

Comparison of Validation Sample Accelerated vs. Standard Track Performance
As the analyses indicated, Soldiers in the accelerated track did indeed perform better than did Soldiers in the standard track on a variety of criteria. First, they scored better on the BCT-JKT. They also reported greater levels of Army Affective Commitment, Army Specific Self-efficacy, Organizational Identification, Desire for an Army Career, Self-efficacy, and Army Expectations. Although the findings for Drill Sergeant ratings (composite and overall) and post-training APFT were not significant, they all approached significance ($p's < .10$).

Thus, the Soldiers who were selected into the accelerated track generally performed better and had better attitudes towards the Army than did Soldiers not selected into the accelerated track. Although the relationships between predictors and criteria were not as strong in the validation sample as they were in the development sample, the findings in the validation work indicate that the more qualified Soldiers were selected into the accelerated track. There are two elements of caution when considering these results. One is that Drill Sergeants knew that the Soldiers assigned to the accelerated track should be more qualified, thus they may have treated them differently than if they had been in the standard track (although they did not know how they were selected). This may have led to a Hawthorne-like effect in the Drill Sergeants' ratings. The second is that because the number of Soldiers in the accelerated track was smaller than in the standard track, Drill Sergeants were able to spend more individual time with the Soldiers and this fact may have contributed to their superior performance.

Discrepancy in Development vs. Validation Findings

Several potential factors to account for why the results differed to the extent that they did between the development and validation studies are discussed below.

Sample size. As mentioned previously, due to scheduling constraints, the predictor battery was developed using only the data from the accelerated development sample. Thus, one potential problem was this small sample size. Although significant relationships were obtained, with a small sample there is a greater possibility that correlations will be more sample specific and not generalizable; in other words the data could "over-fit" the sample. Moreover, the sample size for some analyses in the validation research was quite small as well, especially for the Drill Sergeant ratings. Thus, replicating research findings with such constraints is difficult.

In addition, the inability to use the development sample's attitudinal predictor or criterion data for developing the experimental selection tool due to the small sample size was a significant limitation. The number of Soldiers who completed the pre-training attitudes measure and were rated by Drill Sergeants was too low to conduct meaningful analyses. Further, the overall sample size prohibited the number of analyses that would have been required to include the attitudinal data as criteria. One of the strengths of non-cognitive predictors is their ability to predict motivational aspects of performance (e.g., Knapp & Tremble, 2007). Therefore, including attitudinal criteria should be an important component of future selection tools.

Selection tool basis. In addition to the small sample size, another issue was that the group on which the selection tool was based was, arguably, not representative of all Soldiers beginning Basic Combat Training. The Soldiers in the development sample were selected based on GT scores, physical fitness scores, and a brief Drill Sergeant interview. Analyses revealed statistically significant differences for cognitive aptitude, physical fitness scores, and several RBI scales between Soldiers in the accelerated and standard tracks (even though the Soldiers in the development accelerated track were not selected based on RBI scores). Thus, a prediction equation based on a more elite group was applied to an entire Basic Combat Training class. Ideally, the development of the selection tool would not have been limited to analyses with accelerated Soldiers only but scheduling demands prevented additional analyses with the standard Soldiers. Therefore, the differences in the composition of the sample would help explain why the regressions equations were different between the development and validation samples and why the non-cognitive predictors did not fare as well in the validation sample.

Response distortion. The influence of response distortion may be another explanation as to why the prediction equation based on the development sample was different when compared to the validation sample. Most of the RBI scores differed significantly between the two samples and the difference was in the more socially desirable direction for the validation sample(e.g., validation sample reported higher levels of Peer Leadership, Cognitive Flexibility, and Stress Tolerance and lower levels of Hostility towards Authority (see Table 11)). In addition, the standard deviations were generally lower in the validation sample. Thus, not only did response distortion potentially lead to significantly different scores, but it also may have contributed to increased range restriction. These factors probably were partially responsible for the reduction in the experimental selection tool's predictive ability. Even though scores were adjusted based on responses to the RBI Lie Scale, it appears that response distortion still remained an issue with this research. Therefore, an avenue for future research efforts is to identify further means of reducing response distortion in non-cognitive measures.

Conclusions and Future Research

This research provides several lessons learned that the Army can apply to the future. First, non-cognitive assessment does contribute to the identification of the most well-prepared Soldiers for a more challenging training regimen. Further research is required to develop a stable, validated prediction model, but there is sufficient evidence to view the possibility as promising. Second, further research on methods of combating response distortion on non-cognitive measures should be pursued. Third, well-prepared Soldiers in accelerated training

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programs are not disadvantaged by the shorter training time as measured by the criteria used in the current research.

Currently, the relationships between non-cognitive predictors and job specific training performance are being assessed as part of a larger Army Research Institute research project, i.e., Army Classification. Although job specific training and Basic Combat Training are not the same type of training, job specific training occurs immediately after Basic Combat Training and there are enough similarities in the training environment that the results of the job specific training analyses could provide a good basis as to what constructs would be useful in constructing a Basic Combat Training selection tool. A model based on this research then could be validated with Basic Combat Training classes.

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APPENDIX A

Correlation Tables for the Development Sample

Table A.1. Correlations between Predictors and Criteria for the Accelerated Track Soldiers in the Development Sample

	Predictor Measures											
	1	2	3	4	5	6	7	8	9	10	11	12
Predictors												
1. RBI: Peer Leadership	.74											
2. RBI: Cognitive Flexibility	.55**	.77										
3. RBI: Achievement Motivation	.49**	.51**	.71									
4. RBI: Fitness Motivation	.29**	.22**	.35**	.78								
5. RBI: Interpersonal Skills	.49**	.27**	.31**	.29**	.73							
6. RBI: Stress Tolerance	.15*	.23**	.13*	.32**	.21**	.73						
7. RBI: Hostility to Authority	-.03	-.20**	-.28**	-.10	-.04	-.43**	.70					
8. RBI: Self-efficacy	.52**	.47**	.49**	.46**	.44**	.32**	-.16*	.79				
9. RBI: Cultural Tolerance	.24**	.45**	.27**	.14*	.32**	.35**	-.26**	.31**	.68			
10. RBI: Internal Locus of Control	.17**	.20**	.25**	.25**	.21**	.36**	-.43**	.30**	.21**	.69		
11. RBI: Army Affective Commitment	.26**	.18**	.30**	.35**	.24**	.23**	-.08	.35**	.17*	.28**	.69	
12. RBI: Respect for Authority	.23**	.31**	.51**	.17**	.17**	.09	-.29**	.24**	.17*	.21**	.06	.75
13. Army-specific Self-efficacy	.29**	.24**	.31**	.54**	.29**	.25**	.03	.61**	.22**	.19**	.42**	.15
14. Affective Commitment	.27**	.19**	.29**	.25**	.24**	.05	.00	.29**	.10	.15*	.62**	.10
15. Continuance Commitment	-.04	.00	.00	-.03	.19**	-.12	.12	-.03	-.01	-.03	.19*	-.04
16. Organizational Identification	.28**	.22**	.36**	.33**	.34**	.05	-.07	.40**	.07	.12	.58**	.13
17. Desire for an Army Career	.06	.04	.08	.15*	.21**	.08	.08	.19**	.06	.03	.52**	-.07
18. Self-efficacy	.29**	.33**	.36**	.43**	.29**	.15*	-.03	.64**	.24**	.22**	.29**	.10
19. Army Expectations	.23**	.18*	.23**	.26**	.18*	.08	.09	.37**	-.04	.03	.37**	.03
20. GT Score	-.01	.19*	.14	.08	-.12	.12	-.28**	.02	.11	.23**	.03	.07
21. Pre-training APFT	.10	.02	.18*	.51**	.02	.10	-.11	.16*	-.01	.19*	.17*	.25**
Criteria												
22. BCT JKT	.06	.15*	.05	.19**	-.01	.22*	-.20**	.11	.09	.24**	.13*	.01
23. Drill Sergeant Rating Overall	.24	.02	.32*	.34*	-.01	-.01	-.03	.39**	-.04	.25	.42**	.15
24. Drill Sergeant Rating Composite	.24	.03	.27	.35*	.01	.01	-.12	.46**	-.03	.35*	.37*	.10
25. BRM Score	.03	-.02	-.02	.30**	.07	.08	-.03	.02	-.13	.05	.21*	.00
26. Post-training APFT	-.06	.08	-.04	.35**	-.06	.14	-.08	.06	.06	.10	.04	.03
27. Army-specific Self-efficacy	.22**	.19**	.28**	.41**	.20**	.22**	-.13*	.41**	.09	.22**	.32**	.12
28. Affective Commitment	.22**	.14*	.26**	.30**	.12	.12	-.07	.26**	.04	.24**	.48**	.13*
29. Continuance Commitment	-.09	-.02	.05	-.03	.07	-.07	.04	-.04	-.01	-.11	-.02	.12
30. Organizational Identification	.22**	.20**	.32**	.28**	.14*	.09	-.14*	.28**	.05	.18**	.45**	.21**
31. Desire for an Army Career	.18	.12	.09	.03	.18	.10	.07	.14	.18	.09	.50**	.05
32. Self-efficacy	.29**	.28**	.31**	.33**	.25**	.10	-.02	.49**	.05	.17**	.23**	.22**
33. Army Expectations	.15	-.04	.00	.04	.17	.07	.10	.08	-.14	-.04	.19*	-.04

Table A.1. Correlations between Predictors and Criteria for the Accelerated Track Soldiers in the Development Sample (cont.)

	Predictor Measures									Criterion Measures		
	13	14	15	16	17	18	19	20	21	22	23	24
Predictors												
1. RBI: Peer Leadership												
2. RBI: Cognitive Flexibility												
3. RBI: Achievement Motivation												
4. RBI: Fitness Motivation												
5. RBI: Interpersonal Skills												
6. RBI: Stress Tolerance												
7. RBI: Hostility to Authority												
8. RBI: Self-efficacy												
9. RBI: Cultural Tolerance												
10. RBI: Internal Locus of Control												
11. RBI: Army Affective Commitment												
12. RBI: Respect for Authority												
13. Army-specific Self-efficacy	.93											
14. Affective Commitment	.53**	.86										
15. Continuance Commitment	.17**	.38**	.82									
16. Organizational Identification	.40**	.63**	.41**	.80								
17. Desire for an Army Career	.34**	.56**	.40**	.54**	.73							
18. Self-efficacy	.50**	.40**	.12*	.45**	.40**	.80						
19. Army Expectations	.30**	.37**	.20**	.43**	.35**	.45**	.83					
20. GT Score	-.02	-.12	-.21**	-.16*	-.14	-.07	-.19**	-				
21. Pre-training APFT	.31**	.04	-.17*	-.03	-.08	.22**	-.03	.16**	-			
Criteria												
22. BCT JKT	-.09	-.09	-.05	-.06	-.06	.02	-.13	.31**	.16*	.53		
23. Drill Sergeant Rating Overall	.18	.32	-.21	.27	-.09	.15	.15	-.11	.33*	.27	-	
24. Drill Sergeant Rating Composite	.12	.30	-.30	.20	-.14	.13	.15	-.14	.30*	.30*	.91**	-
25. BRM Score	.22	.16	.06	.23	.06	.22	.23	.09	.20*	.24*	.20*	.14
26. Post-training APFT	.11	-.01	-.14	.01	-.13	.01	-.24	.10	.56**	.09	.33*	.29*
27. Army-specific Self-efficacy	.44**	.25**	.12	.37**	.21**	.42**	.35**	-.12	.24**	.18**	.35**	.37**
28. Affective Commitment	.22**	.56**	.19**	.47**	.36**	.35**	.32**	-.07	.23**	.17**	.32*	.30*
29. Continuance Commitment	.07	.17*	.50**	.15*	.18**	.06	.01	-.25**	-.04	-.04	-.16	-.16
30. Organizational Identification	.22**	.50**	.26**	.58**	.34**	.41**	.31**	-.09	.21**	.11	.11	.10
31. Desire for an Army Career	.23	.64**	.39**	.50**	.69**	.33*	.44**	-.20*	-.14	-.07	.05	.00
32. Self-efficacy	.45**	.26**	.13	.44*	.21**	.59**	.38**	.02	.22*	.08	.21	.20
33. Army Expectations	.30*	.50**	.18	.44**	.34*	.15	.49**	-.26*	-.15	-.06	-.13	.24

Table A.1. Correlations between Predictors and Criteria for the Accelerated Track Soldiers in the Development Sample (cont.)

		Criterion Measures							
	25	26	27	28	29	30	31	32	33

Predictors
1. RBI: Peer Leadership
2. RBI: Cognitive Flexibility
3. RBI: Achievement Motivation
4. RBI: Fitness Motivation
5. RBI: Interpersonal Skills
6. RBI: Stress Tolerance
7. RBI: Hostility to Authority
8. RBI: Self-Efficacy
9. RBI: Cultural Tolerance
10. RBI: Internal Locus of Control
11. RBI: Army Affective Commitment
12. RBI: Respect for Authority
13. Army-specific Self-efficacy
14. Affective Commitment
15. Continuance Commitment
16. Organizational Identification
17. Desire for an Army Career
18. Self-efficacy
19. Army Expectations
20. GT Score
21. RECBN APFT

Criteria
22. BCT JKT
23. Drill Sergeant Rating Overall
24. Drill Sergeant Rating Composite

	25	26	27	28	29	30	31	32	33
25. BRM Score	-								
26. Final APFT	.24**	-							
27. Army-specific Self-efficacy	.26**	.18*	.88						
28. Affective Commitment	.13	.06	.53**	.86					
29. Continuance Commitment	.03	-.08	.12*	.20**	.86				
30. Organizational Identification	.07	-.05	.51**	.74**	.27**	.78			
31. Desire for an Army Career	.03	-.03	.43**	.64**	.36**	.60**	.81		
32. Self-efficacy	.20*	.05	.59**	.50**	.18**	.50**	.48**	.71	
33. Army Expectations	.04	-.06	.34**	.50**	.17	.49**	.41**	.42**	.77

Note. *p* < .05, **p* < .01.
Values on the diagonal are reliability estimates.
Predictor measures. RBI scale *n* ranges from 99 to 111. Attitudes scale *n* = 54. GT score *n* = 111. Pre-training APFT score *n* = 121.
Criterion measures. BCT JKT *n* = 118. Drill Sergeant rating *n* = 53. BRM score *n*= 121. Final APFT score *n*= 121. Attitudes scale *n* ranges from 121 to 123.

Table A.2. Correlations between Predictors for the Standard Soldiers in the Development Sample

Predictors	Predictor Measures											
	1	2	3	4	5	6	7	8	9	10	11	12
1. RBI: Peer Leadership	.75											
2. RBI: Cognitive Flexibility	.59**	.77										
3. RBI: Achievement Motivation	.51**	.44*	.70									
4. RBI: Fitness Motivation	.20*	.13	.27**	.73								
5. RBI: Interpersonal Skills	.53**	.34**	.38**	.40**	.79							
6. RBI: Stress Tolerance	.04	.20*	-.03	.26**	.21*	.74						
7. RBI: Hostility to Authority	-.07	-.08	-.14	.04	-.10	-.41**	.67					
8. RBI: Self-efficacy	.49**	.41**	.40**	.44**	.46**	.24**	-.05	.76				
9. RBI: Cultural Tolerance	.18*	.42**	.22*	.21*	.36**	.39**	-.21*	.27**	.67			
10. RBI: Internal Locus of Control	.24**	.22**	.27**	.22**	.32**	.30**	-.31**	.26**	.24**	.65		
11. RBI: Army Affective Commitment	.19*	.17*	.29**	.39**	.20*	.17*	-.05	.32**	.15	.27**	.69	
12. RBI: Respect for Authority	.29**	.22**	.51**	.08	.25**	.02	-.22**	.18*	.18*	.25**	.07	.76
13. Army-specific Self-efficacy	.20*	.18*	.23**	.53**	.26**	.23**	.02	.51**	.23**	.17*	.39**	.09
14. Affective Commitment	.08	.04	.18*	.18*	.13	.03	-.08	.16*	-.01	.23**	.43**	.04
15. Continuance Commitment	.02	.00	.08	.12	.17*	-.15	.12	.09	-.02	.00	.18*	-.07
16. Organizational Identification	.28**	.19*	.36**	.38**	.34**	-.03	-.07	.42**	-.02	.09	.52**	.12
17. Desire for an Army Career	.04	.04	.12	.28**	.14	.07	.06	.23**	.05	.06	.54**	-.07
18. Self-efficacy	.28**	.27**	.31**	.47**	.40**	.15	.00	.63**	.21*	.22**	.30**	.06
19. Army Expectations	.30**	.24**	.29**	.36**	.24**	.07	.08	.38**	-.04	.13	.37**	.11
20. GT Score	.16	.23	.09	.02	-.07	.22	-.20	.06	.08	.22	-.06	-.03
21. Pre-training APFT	.13	-.02	.21	.34**	.14	.04	-.04	.00	.10	.12	.29*	.11

Note. $*p < .05$, $**p < .01$.
Values on the diagonal are reliability estimates.
RBI scale *n* ranges from 677 to 768. Attitudes scale *n* ranges from 357 to 360. GT score *n* = 437. Pre-training APFT score *n* = 437.

APPENDIX B

Correlation Tables for Validation Sample

Table B.1. Correlations between the Accelerated Validation Sample Predictors and Criteria

	Predictor Measures											
	1	2	3	4	5	6	7	8	9	10	11	12
Predictors												
1. RBI: Peer Leadership	.76											
2. RBI: Cognitive Flexibility	.52**	.80										
3. RBI: Achievement Motivation	.52**	.47**	.72									
4. RBI: Fitness Motivation	.24**	.20**	.21**	.81								
5. RBI: Interpersonal Skills	.50**	.31**	.30**	.21**	.74							
6. RBI: Stress Tolerance	.26**	.28**	.18**	.25**	.45**	.75						
7. RBI: Hostility to Authority	-.04	-.13*	-.25**	-.11	-.11	-.33**	.70					
8. RBI: Self-efficacy	.43**	.42**	.47**	.30**	.31**	.25**	-.10	.80				
9. RBI: Cultural Tolerance	.34**	.47**	.30**	.09	.42**	.41**	-.17**	.39**	.69			
10. RBI: Internal Locus of Control	.31**	.36**	.36**	.14*	.26**	.41**	-.28**	.32**	.28**	.66		
11. RBI: Army Affective Commitment	.32**	.19**	.28**	.29**	.24**	.35**	-.30**	.33**	.28**	.29**	.65	
12. RBI: Respect for Authority	.44**	.47**	.53**	.14*	.25**	.18**	-.17**	.27**	.22**	.31**	.26**	.66
13. Army-specific Self-efficacy	.32**	.25**	.22**	.23**	.27**	.29**	-.04	.34**	.24**	.30**	.33**	.19**
14. Affective Commitment	.39**	.27**	.34**	.22**	.35**	.30**	-.12*	.35**	.17**	.29**	.49**	.27**
15. Continuance Commitment	.11	.05	.11	.11	.08	-.01	.05	.11	-.02	-.04	.18**	.06
16. Organizational Identification	.36**	.31**	.35**	.27**	.28**	.22**	-.09	.30**	.16**	.25**	.44**	.33**
17. Desire for an Army Career	.40**	.30**	.29**	.31**	.39**	.38**	-.16**	.28**	.24**	.24**	.48**	.24**
18. Self-efficacy	.40**	.42**	.40**	.25**	.35**	.24**	-.09	.54**	.34**	.28**	.34**	.32**
19. Army Expectations	.40**	.26**	.29**	.21**	.25**	.18**	-.01	.30**	.15*	.18**	.36**	.28**
20. GT Score	.00	.11	.07	-.18**	-.04	.03	-.12*	-.08	-.01	.21**	-.02	.01
21. Pre-training APFT	.06	-.04	.14	.28**	.09	-.09	-.16	-.05	.01	-.03	.02	.18*
Criteria												
22. BCT JKT	-.10	.01	-.04	-.11	-.07	-.03	-.04	-.02	.01	.10	.06	-.12
23. Drill Sergeant Rating Overall	.04	-.03	-.05	.05	.07	.27*	-.12	-.01	.19	.06	.13	.08
24. Drill Sergeant Rating Composite	-.02	-.14	-.11	.20	.11	.24	-.02	.02	.24	.03	.16	.06
25. BRM Score	.05	-.01	-.09	.12	-.01	.08	.06	-.11	-.05	.17	.03	.03
26. Post-training APFT	-.16	-.10	-.08	.02	-.03	-.06	.05	.01	.04	-.16	-.02	-.08
27. Army-specific Self-efficacy	.10	.13*	.09	.15*	.11	.10	-.05	.20**	.03	.11	.07	.08
28. Affective Commitment	.12	.05	.09	.04	.15*	.13*	-.11	.09	.01	.06	.23**	.11
29. Continuance Commitment	.04	-.02	.08	-.01	.00	-.09	.08	.04	-.15*	-.09	.09	.01
30. Organizational Identification	.19**	.11	.16**	.08	.19**	.06	-.06	.15*	-.02	.13*	.20**	.20**
31. Desire for an Army Career	.14*	.06	.07	.14*	.17**	.15*	-.11	.12	.02	.08	.24**	.02
32. Self-efficacy	.23**	.19**	.13*	.12*	.14*	.06	-.04	.32**	.01	.12	.14*	.16*
33. Army Expectations	.21**	.11	.12	.11	.14*	.15*	-.04	.17**	.04	.12*	.16**	.12

Table B.1. Correlations between the Accelerated Validation Sample Predictors and Criteria (cont.)

	Predictor Measures									Criterion Measures		
	13	14	15	16	17	18	19	20	21	22	23	24
Predictors												
1. RBI: Peer Leadership												
2. RBI: Cognitive Flexibility												
3. RBI: Achievement Motivation												
4. RBI: Fitness Motivation												
5. RBI: Interpersonal Skills												
6. RBI: Stress Tolerance												
7. RBI: Hostility to Authority												
8. RBI: Self-efficacy												
9. RBI: Cultural Tolerance												
10. RBI: Internal Locus of Control												
11. RBI: Army Affective Commitment												
12. RBI: Respect for Authority												
13. Army-specific Self-efficacy	.94											
14. Affective Commitment	.45**	.79										
15. Continuance Commitment	.08	.27**	.77									
16. Organizational Identification	.44**	.56**	.24**	.71								
17. Desire for an Army Career	.38**	.56**	.34**	.47**	.78							
18. Self-efficacy	.40**	.48**	.15*	.43**	.43**	.81						
19. Expectations	.29**	.46**	.20**	.38**	.41**	.42**	.81					
20. GT Score	.09	.07	-.07	-.02	-.06	-.04	-.11	-				
21. Pre-training APFT	.08	-.04	-.04	.09	.01	-.02	-.05	.08	-			
Criteria												
22. BCT JKT	.07	.08	-.01	-.01	-.08	-.07	-.10	.45**	.17*	.60		
23. Drill Sergeant Rating Overall	-.07	.25*	-.03	-.11	.13	.10	-.10	.23	-.24	.21	.94	
24. Drill Sergeant Rating Composite	-.05	.22	-.01	-.10	-.01	.14	-.06	.07	-.24	.22	.87**	-
25. BRM Score	.05	.12	.02	.07	.13	.01	-.01	.04	.20	.14	.21	.22
26. Post-training APFT	-.10	-.04	-.16	-.12	-.10	.00	-.09	-.10	.63**	.02	.27	.34
27. Army-specific Self-efficacy	.14*	.27**	.05	.22**	.28**	.24**	.14*	-.14*	.08	.03	.05	.06
28. Affective Commitment	.08	.42**	.22**	.28**	.39**	.14*	.22**	-.02	.04	.04	.08	-.07
29. Continuance Commitment	-.04	.12	.57**	.14*	.24**	.06	.16*	-.12	-.08	-.08	-.19	-.15
30. Organizational Identification	.09	.36**	.20**	.44**	.34**	.20**	.22**	-.04	-.02	-.02	-.07	-.08
31. Desire for an Army Career	.13*	.37**	.26**	.26**	.53**	.13*	.25**	-.14*	-.03	-.05	.17	.01
32. Self-efficacy	.15*	.26**	.17**	.22**	.23**	.35**	.24**	-.09	-.10	.01	-.03	.02
33. Expectations	.19**	.34**	.24**	.30**	.42**	.31**	.49**	-.12	.02	.01	.09	-.05

Table B.1. Correlations between the Accelerated Validation Sample Predictors and Criteria (cont.)

| | Criterion Measures | | | | | | | | |
	25	26	27	28	29	30	31	32	33
Predictors									
1. RBI: Peer Leadership									
2. RBI: Cognitive Flexibility									
3. RBI: Achievement Motivation									
4. RBI: Fitness Motivation									
5. RBI: Interpersonal Skills									
6. RBI: Stress Tolerance									
7. RBI: Hostility to Authority									
8. RBI: Self-Efficacy									
9. RBI: Cultural Tolerance									
10. RBI: Internal Locus of Control									
11. RBI: Army Affective Commitment									
12. RBI: Respect for Authority									
13. Army-specific Self-efficacy									
14. Affective Commitment									
15. Continuance Commitment									
16. Organizational Identification									
17. Desire for an Army Career									
18. Self-efficacy									
19. Expectations									
20. GT Score									
21. RECBN APFT									
Criteria									
22. BCT JKT									
23. Drill Sergeant Rating Overall									
24. Drill Sergeant Rating Composite									
25. BRM Score	-								
26. Final APFT	.03	-							
27. Army-specific Self-efficacy	.02	.09	.73						
28. Affective Commitment	.17	.09	.43**	.82					
29. Continuance Commitment	-.01	-.05	.10	.36**	.82				
30. Organizational Identification	.17	-.04	.37**	.70**	.41**	.68			
31. Desire for an Army Career	.14	.00	.44**	.70**	.40**	.55**	.80		
32. Self-efficacy	.05	.10	.55**	.48**	.25**	.52**	.43**	.74	
33. Expectations	.10	-.14	.38**	.50**	.29**	.46**	.56**	.38**	.78

Note. * $p < .05$, ** $p < .01$.
Values on the diagonal are reliability estimates.
Predictor measures. RBI scale *n* ranges from 261 to 281. Attitudes scale *n* ranges from 276 to 277. GT score *n* = 281. RECBN APFT score *n* = 141.
Criterion measures. BCT JKT *n* = 271. Drill Sergeant rating *n* ranges from 57 to 66. BRM score *n* = 140. Final APFT score *n* ranges = 138. Attitudes scale *n* ranges from 270 to 271.

Table B.2. Correlations between the Standard Validation Sample Predictors and Criteria

	Predictor Measures											
	1	2	3	4	5	6	7	8	9	10	11	12
Predictors												
1. RBI: Peer Leadership	.77											
2. RBI: Cognitive Flexibility	.56**	.79										
3. RBI: Achievement Motivation	.59**	.55**	.71									
4. RBI: Fitness Motivation	.42**	.30**	.36**	.75								
5. RBI: Interpersonal Skills	.56**	.38**	.44**	.30**	.74							
6. RBI: Stress Tolerance	.33**	.35**	.20**	.29**	.43**	.74						
7. RBI: Hostility to Authority	-.14**	-.23**	-.26**	-.05	-.26**	-.41**	.64					
8. RBI: Self-efficacy	.58**	.53**	.56**	.38**	.46**	.37**	-.25**	.79				
9. RBI: Cultural Tolerance	.34**	.42**	.34**	.19**	.41**	.43**	-.43**	.39**	.66			
10. RBI: Internal Locus of Control	.39**	.42**	.39**	.21**	.40**	.50**	-.42**	.45**	.42**	.68		
11. RBI: Army Affective Commitment	.39**	.36**	.43**	.31**	.32**	.32**	-.27**	.45**	.38**	.35**	.67	
12. RBI: Respect for Authority	.41**	.37**	.50**	.20**	.28**	.17**	-.26**	.38**	.27**	.29**	.29**	.69
13. Army-specific Self-efficacy	.37**	.29**	.34**	.38**	.35**	.26**	-.12**	.43**	.29**	.29**	.33**	.25**
14. Affective Commitment	.34**	.33**	.38**	.31**	.32**	.24**	-.17**	.38**	.27**	.29**	.55**	.32**
15. Continuance Commitment	.08*	.05	.11**	.13**	.10**	-.05	.03	.07	.09*	.01	.11**	.12**
16. Organizational Identification	.33**	.29**	.33**	.30**	.28**	.13**	-.11**	.30**	.22**	.24**	.46**	.29**
17. Desire for an Army Career	.38**	.32**	.38**	.34**	.37**	.29**	-.16**	.40**	.31**	.33**	.52**	.34**
18. Self-efficacy	.42**	.36**	.40**	.34**	.38**	.25**	-.16**	.49**	.27**	.32**	.31**	.27**
19. Expectations	.35**	.27**	.30**	.29**	.32**	.20**	-.11**	.34**	.17**	.21**	.24**	.21**
20. GT Score	.04	.19**	.02	-.07	-.06	.16**	-.11**	.00	-.02	.20**	.04	-.02
21. Pre-training APFT	-.15*	-.18**	-.14*	.23**	-.26**	-.22**	.18**	-.20**	-.26**	-.14*	-.17**	-.06
Criteria												
22. BCT JKT	.07*	.12**	.01	-.02	-.01	.17**	-.16**	.06	.07	.17**	.10**	.04
23. Drill Sergeant Rating Overall	.14	.07	.06	.30**	.02	.14	.03	.05	-.14	.04	.11	.21
24. Drill Sergeant Rating Composite	.16	.04	.06	.29**	.01	.13	.05	.03	-.15	.04	.07	.21
25. BRM Score	.04	-.17	-.03	.09	-.16	-.04	.10	-.01	-.01	-.04	-.12	.04
26. Post-training APFT	.09	-.06	-.05	.17	-.14	-.09	.11	-.08	-.10	-.05	-.07	.01
27. Army-specific Self-efficacy	.24**	.18**	.17**	.21**	.18**	.16**	-.02	.30**	.14**	.18**	.23**	.11**
28. Affective Commitment	.17**	.16**	.19**	.12**	.15**	.08*	-.06	.18**	.17**	.15**	.37**	.16**
29. Continuance Commitment	.02	-.01	.04	.03	-.04	-.14**	.10**	-.03	.00	-.07	.04	.05
30. Organizational Identification	.21**	.18**	.21**	.11**	.12**	.04	-.09*	.14**	.11**	.11**	.31**	.21**
31. Desire for an Army Career	.14**	.09*	.14**	.04	.12**	-.03	.01	.08*	.03	.03	.17**	.14**
32. Self-efficacy	.27**	.19**	.24**	.20**	.17**	.12**	-.09*	.28**	.17**	.20**	.20**	.13**
33. Army Expectations	.20**	.14**	.14**	.10**	.13**	.06	-.07	.16**	.10*	.13**	.14**	.12**

Table B.2. Correlations between the Standard Validation Sample Predictors and Criteria (cont.)

	Predictor Measures									Criterion Measures		
	13	14	15	16	17	18	19	20	21	22	23	24
Predictors												
1. RBI: Peer Leadership												
2. RBI: Cognitive Flexibility												
3. RBI: Achievement Motivation												
4. RBI: Fitness Motivation												
5. RBI: Interpersonal Skills												
6. RBI: Stress Tolerance												
7. RBI: Hostility to Authority												
8. RBI: Self-efficacy												
9. RBI: Cultural Tolerance												
10. RBI: Internal Locus of Control												
11. RBI: Army Affective Commitment												
12. RBI: Respect for Authority												
13. Army-specific Self-efficacy	.94											
14. Affective Commitment	.52**	.85										
15. Continuance Commitment	.16**	.30**	.74									
16. Organizational Identification	.40**	.65**	.34**	.74								
17. Desire for an Army Career	.44**	.71**	.35**	.59**	.78							
18. Self-efficacy	.54**	.63**	.23**	.53**	.59**	.78						
19. Expectations	.34**	.43**	.22**	.45**	.40**	.50**	.83					
20. GT Score	-.03	-.04	-.09*	-.07	-.03	-.09*	-.03	-				
21. Pre-training APFT	-.02	-.14*	-.02	-.17**	-.14*	-.09	-.10	-.06	-			
Criteria												
22. BCT JKT	-.03	.01	-.10**	-.03	.00	-.07*	-.01	.43**	-.03	.76		
23. Drill Sergeant Rating Overall	.03	.13	-.03	.10	.12	.11	.11	.14	.27	.10	.97	
24. Drill Sergeant Rating Composite	.05	.15	-.01	.08	.10	.10	.11	.13	.20	.07	.97**	-
25. BRM Score	-.04	-.16	.02	-.19	-.19	-.11	-.07	.13	.20	-.10	.47*	.55**
26. Post-training APFT	-.06	-.11	-.05	-.08	-.13	-.06	-.05	-.04	.63**	.07	.43**	.47**
27. Army-specific Self-efficacy	.29**	.19**	.09**	.16**	.23**	.24**	.18**	.06	.15*	.14**	.34**	.35**
28. Affective Commitment	.18**	.35**	.12**	.28**	.32**	.17**	.17**	.01	.07	.09**	.29**	.29**
29. Continuance Commitment	.05	.12**	.44**	.16**	.16**	.06	.10**	-.03	.07	-.02	-.03	.00
30. Organizational Identification	.16**	.29**	.13**	.38**	.30**	.17**	.18**	.03	.00	.08*	.21*	.18*
31. Desire for an Army Career	.13**	.21**	.16**	.20**	.27**	.13**	.13**	-.04	.04	-.04	.16	.13
32. Self-efficacy	.21**	.21**	.12**	.19**	.23**	.32**	.26**	.05	.11	.12**	.16	.17
33. Army Expectations	.14**	.13**	.08*	.17**	.14**	.14**	.31**	-.01	-.09	.04	.03	.07

Table B.2. Correlations between the Standard Validation Sample Predictors and Criteria (cont.)

	Criterion Measures								
	25	26	27	28	29	30	31	32	33

Predictors
1. RBI: Peer Leadership
2. RBI: Cognitive Flexibility
3. RBI: Achievement Motivation
4. RBI: Fitness Motivation
5. RBI: Interpersonal Skills
6. RBI: Stress Tolerance
7. RBI: Hostility to Authority
8. RBI: Self-Efficacy
9. RBI: Cultural Tolerance
10. RBI: Internal Locus of Control
11. RBI: Army Affective Commitment
12. RBI: Respect for Authority
13. Army-specific Self-efficacy
14. Affective Commitment
15. Continuance Commitment
16. Organizational Identification
17. Desire for an Army Career
18. Self-efficacy
19. Expectations
20. GT Score
21. RECBN APFT

Criteria
22. BCT JKT
23. Drill Sergeant Rating Overall
24. Drill Sergeant Rating Composite

Predictor / Criteria	25	26	27	28	29	30	31	32	33
25. BRM Score	-								
26. Final APFT	.18*	-							
27. Army-specific Self-efficacy	.01	.11	.88						
28. Affective Commitment	-.03	-.04	.61**	.82					
29. Continuance Commitment	.15	.13	.21**	.32**	.81				
30. Organizational Identification	-.01	.10	.44**	.57**	.34**	.72			
31. Desire for an Army Career	-.10	.04	.33**	.53**	.32**	.50**	.75		
32. Self-efficacy	.05	.12	.68**	.53**	.21**	.50**	.36**	.73	
33. Army Expectations	.10	.07	.40**	.43**	.22**	.43**	.39**	.46**	.74

Note. * $p < .05$, ** $p < .01$.
Values on the diagonal are reliability estimates.
Predictor measures. RBI scale n ranges from 596 to 869. Attitudes scale n ranges from 845 to 852. GT score $n = 694$. RECBN APFT score $n = 261$.
Criterion measures. BCT JKT $n = 985$. Drill Sergeant rating $n = 122$. BRM score $n = 146$. Final APFT score n ranges = 191. Attitudes scale n ranges from 968 to 971.

Table B.3. Correlations between the Entire Validation Sample Predictors and Criteria

	Predictor Measures											
	1	2	3	4	5	6	7	8	9	10	11	12
Predictors												
1. RBI: Peer Leadership												
2. RBI: Cognitive Flexibility	.57**											
3. RBI: Achievement Motivation	.58**	.54**										
4. RBI: Fitness Motivation	.39**	.31**	.35**									
5. RBI: Interpersonal Skills	.54**	.38**	.41**	.26**								
6. RBI: Stress Tolerance	.34**	.34**	.22**	.30**	.42**							
7. RBI: Hostility to Authority	-.14**	-.21**	-.27**	-.08**	-.23**	-.40**						
8. RBI: Self-efficacy	.56**	.52**	.57**	.41**	.41**	.36**	-.21**					
9. RBI: Cultural Tolerance	.36**	.45**	.34**	.18**	.41**	.43**	-.38**	.40**				
10. RBI: Internal Locus of Control	.40**	.42**	.41**	.23**	.35**	.50**	-.41**	.46**	.40**			
11. RBI: Army Affective Commitment	.38**	.33**	.40**	.32**	.29**	.35**	-.28**	.46**	.34**	.36**		
12. RBI: Respect for Authority	.40**	.38**	.50**	.18**	.28**	.17**	-.24**	.34**	.25**	.30**	.28**	
13. Army-specific Self-efficacy	.38**	.31**	.34**	.40**	.33**	.30**	-.10**	.46**	.28**	.32**	.36**	.22**
14. Affective Commitment	.38**	.34**	.39**	.30**	.34**	.28**	-.17**	.40**	.25**	.32**	.56**	.30**
15. Continuance Commitment	.08**	.05	.10**	.08**	.10**	-.04	.02	.07*	.06	-.01	.13**	.11**
16. Organizational Identification	.33**	.29**	.35**	.28**	.27**	.14**	-.11**	.32**	.20**	.24**	.46**	.31**
17. Desire for an Army Career	.37**	.31**	.36**	.29**	.36**	.30**	-.16**	.38**	.26**	.32**	.51**	.29**
18. Self-efficacy	.42**	.35**	.41**	.34**	.35**	.28**	-.15**	.51**	.29**	.34**	.32**	.27**
19. Army Expectations	.36**	.28**	.31**	.29**	.31**	.21**	-.10**	.33**	.17**	.23**	.29**	.22**
20. GT Score	.09**	.21**	.09**	.03	-.01	.18**	-.14**	.06*	.05	.27**	.07*	.01
21. Pre-Training APFT	.02	.01	.04	.47**	-.02	.02	.03	.05	-.01	.05	.07	.04
Criteria												
22. BCT JKT	.07*	.14**	.05	.07*	-.01	.17**	-.15**	.10**	.07*	.20**	.14**	.02
23. Drill Sergeant Rating Composite	.15	.07	-.13	.26**	.05	.15*	-.04	-.17*	.01	-.07	.15	.17*
24. Drill Sergeant Rating Overall	.15	.02	-.21**	.30**	.06	.06	.01	-.26**	.00	-.13	.13	.17
25. BRM Score	.03	-.09	-.07	.08	-.08	.01	.08	-.08	-.04	.05	-.06	.05
26. Post-Training APFT	-.05	-.08	-.06	.05	-.07	-.08	.08	-.04	.02	-.11	-.04	-.04
27. Army-specific Self-efficacy	.23**	.19**	.18**	.24**	.18**	.17**	-.04	.31**	.13**	.19**	.22*	.11**
28. Affective Commitment	.17**	.15**	.18**	.13**	.15**	.10**	-.08*	.18**	.14**	.14**	.34**	.16**
29. Continuance Commitment	.02	-.02	.04	.01	-.03	-.13**	.10**	-.02	-.04	-.07*	.04	.03
30. Organizational Identification	.21**	.18**	.21**	.13**	.14**	.07*	-.09**	.16**	.09*	.13**	.30**	.21**
31. Desire for an Army Career	.16**	.11	.15**	.13**	.14**	.05	-.04	.13**	.05	.08**	.22**	.12**
32. Self-efficacy	.27**	.21**	.24**	.22**	.17**	.13**	-.09**	.31**	.14**	.20**	.21**	.14**
33. Army Expectations	.22**	.15**	.16**	.14**	.15**	.10**	-.07*	.18**	.10**	.15**	.17**	.12**

Table B.3. Correlations between the Entire Validation Sample Predictors and Criteria (cont.)

	Predictor Measures									Criterion Measures		
	13	14	15	16	17	18	19	20	21	22	23	24
Predictors												
1. RBI: Peer Leadership												
2. RBI: Cognitive Flexibility												
3. RBI: Achievement Motivation												
4. RBI: Fitness Motivation												
5. RBI: Interpersonal Skills												
6. RBI: Stress Tolerance												
7. RBI: Hostility to Authority												
8. RBI: Self-efficacy												
9. RBI: Cultural Tolerance												
10. RBI: Internal Locus of Control												
11. RBI: Army Affective Commitment												
12. RBI: Respect for Authority												
13. Army-specific Self-efficacy												
14. Affective Commitment	.52**											
15. Continuance Commitment	.11**	.28**										
16. Organizational Identification	.40**	.61**	.30**									
17. Desire for an Army Career	.44**	.65**	.33**	.56**								
18. Self-efficacy	.53**	.58**	.19**	.51**	.56**							
19. Army Expectations	.35**	.44**	.20**	.45**	.41**	.49**						
20. GT Score	.06*	.02	-.07*	-.02	.00	-.03	-.01					
21. Pre-Training APFT	.13**	.01	-.05	-.02	.03	.09*	.07	.06				
Criteria												
22. BCT JKT	.03	.05	-.08*	-.01	.02	-.03	.02	.49**	.11*			
23. Drill Sergeant Rating Composite	-.19*	-.15**	-.04	-.15	.06	-.11	-.03	.17*	.23	.16*		
24. Drill Sergeant Rating Overall	-.24**	-.32**	-.03	-.21**	-.02	-.22**	-.08	.07	.20	.15	.95**	
25. BRM Score	.01	-.01	.03	-.06	.00	-.05	-.03	.06	.12	-.08	.32**	.39**
26. Post-Training APFT	-.08	-.08	.12*	-.09	-.12*	-.03	-.07	-.10	.65**	-.01	.35**	.42**
27. Army-specific Self-efficacy	.28**	.21**	.08**	.16**	.25**	.25**	.19**	.07	.22**	.16**	.26**	.28**
28. Affective Commitment	.17**	.37**	.14**	.27**	.34**	.17**	.19**	.03	.07	.11**	.24**	.21**
29. Continuance Commitment	.03	.11**	.48**	.15**	.17**	.05	.11**	-.06	-.04	-.04	-.10	-.06
30. Organizational Identification	.16**	.31**	.15**	.39**	.32**	.18**	.20**	.04	.01	.09**	.14	.13
31. Desire for an Army Career	.16**	.27**	.18**	.22**	.34**	.15**	.19**	.00	.01	.02	.18*	.12
32. Self-efficacy	.22**	.23**	.13**	.20**	.24**	.34**	.27**	.06	.11*	.13**	.12	.14
33. Army Expectations	.17**	.19**	.11**	.20**	.21**	.19**	.36**	.01	.01	.08**	.07	.06

Table B.3. Correlations between the Entire Validation Sample Predictors and Criteria (cont.)

| | Criterion Measures | | | | | | | | |
	25	26	27	28	29	30	31	32	33
Predictors									
1. RBI: Peer Leadership									
2. RBI: Cognitive Flexibility									
3. RBI: Achievement Motivation									
4. RBI: Fitness Motivation									
5. RBI: Interpersonal Skills									
6. RBI: Stress Tolerance									
7. RBI: Hostility to Authority									
8. RBI: Self-efficacy									
9. RBI: Cultural Tolerance									
10. RBI: Internal Locus of Control									
11. RBI: Army Affective Commitment									
12. RBI: Respect for Authority									
13. Army-specific Self-efficacy									
14. Affective Commitment									
15. Continuance Commitment									
16. Organizational Identification									
17. Desire for an Army Career									
18. Self-efficacy									
19. Army Expectations									
20. GT Score									
21. Pre-Training APFT									
Criteria									
22. BCT JKT									
23. Drill Sergeant Rating Composite									
24. Drill Sergeant Rating Overall									
25. BRM Score									
26. Post-Training APFT	.17**								
27. Army-specific Self-efficacy	.00	.06							
28. Affective Commitment	.00	-.01	.59**						
29. Continuance Commitment	.11	.03	.19**	.32**					
30. Organizational Identification	.02	.01	.44**	.60**	.36**				
31. Desire for an Army Career	-.04	.02	.37**	.57**	.32**	.51**			
32. Self-efficacy	.04	.10	.66**	.53**	.21**	.51**	.39**		
33. Army Expectations	.08	-.03	.40**	.45**	.23**	.44**	.44**	.46**	

Note. * $p < .05$, ** $p < .01$.
Values on the diagonal are reliability estimates.
Predictor measures. RBI scale *n* ranges from 857 to 1349. Attitudes scale *n* ranges from 1121 to 1129. GT score *n* = 975. RECBN APFT score *n* = 402.
Criterion measures. BCT JKT *n* = 1256. Drill Sergeant rating *n* = 138-197. BRM score *n* = 286. Final APFT score *n* ranges = 329. Attitudes scale *n* ranges from 1101 to 1397.